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The First Migrants

The First Migrants
How Black Homesteaders' Quest for Land and Freedom Heralded America's Great Migration
RICHARD EDWARDS and JACOB K. FRIEFELD
Preface by ANGELA RAFFIN

Between 1877 and the Great Migration, the first Black migrants left the South and went west to homestead. Amid danger, toil, and hardship, they also found joy, self-worth, and freedom.

"*The First Migrants* expands the historical narrative of American history played by citizens of African descent. This book is informative, comprehensive, and very personal. It shouts, 'We were there.'"

—Catherine Meehan Blount, descendant of Black homesteaders

"As a child, I learned only a bit of my family's homesteading story. *The First Migrants* weaves it together with the stories of other Black families, turning sparse records and anecdotes into a living history."

—Elizabeth Burden, Tucson artist and descendant of Black homesteaders

BISON BOOKS

TO ORDER

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DISPATCH

Daniel Brook on a battle over architecture and national identity in the heart of India's capital.

PERSONS OF INTEREST

Alexandra Schwartz on Karen Cooper, who decided to step down as Film Forum's director after half a century.

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LEFT: NASH WEERASEKERA; RIGHT: EVELYN FREJA

THE MAIL

WOMEN'S WORK

Ariel Levy's recent Profile of the painter Lisa Yuskavage makes a powerful argument for the importance of the artist's work ("Bodies of Work," August 7th). By building her career on pictures of big-breasted, hypersexualized figures that refuse to conform to élite standards of decorum, Yuskavage raises a giant middle finger to anyone who might suggest that there ought to be rules around the way we represent female bodies in public. I was, however, disappointed to see that Yuskavage's vulnerability surrounding her decision not to have children was quickly followed by a confirmation from a former gallerist of hers that it allowed Yuskavage to "really push forward in her career at a pace that was on track with her male colleagues." Yuskavage's paintings reveal the misogyny still baked into our politics and culture; statements like this unfortunately normalize the problematic expectation that a female artist must choose between a career and motherhood.
Emily Davis Adams
El Cerrito, Calif.

At the Musée d'Orsay, Yuskavage refers to the figure portrayed in Manet's "Olympia" as "a known prostitute." There is a long history of conflating the model who posed for the painting and the demimondaine depicted in it. The woman was, in fact, Victorine Meurent, a professional artist's model and painter who was elected to the prestigious Société des Artistes Français, and whose work was exhibited multiple times at the Paris Salon. Readers can see a self-portrait by her at the Museum of Fine Arts in Boston, and discover further details of her life and her place in the art world in Eunice Lipton's "Alias Olympia."
Kristin M. Richardson
Buffalo, N.Y.

GIFT HORSE

Andrew Marantz's piece about the philanthropist Leah Hunt-Hendrix cites Rob Reich's incisive 2018 book, "Just Giving," when highlighting Hunt-Hendrix's generous contributions to many causes ("The Gift," August 14th). But Reich's criticism of philanthropy is not just that it represents a "plutocratic exercise of power" but that it is explicitly subsidized in the United States through tax deductions for charitable contributions. When wealthy individuals donate money, they can take a deduction on their federal income-tax return, thereby lowering their taxable income by that amount. This is money that would otherwise go to the U.S. Treasury, to be allocated by our elected representatives. The question, then, is not whether philanthropy is good or bad but whether taxpayers should be subsidizing it, especially when it comes from those who don't need our help.
Ben Negley
Tempe, Ariz.

While summarizing Hunt-Hendrix's philosophy on charitable giving, Marantz writes that "most current philanthropy amounts to doling out Band-Aids," a statement that felt painfully true. I worked for a New York City charity that employed people experiencing homelessness as street sweepers—an occupation that never quite paid enough for them to move out of the shelter system. I found our mission to be shortsighted and often determined by organizations and individuals with their own agendas. In fact, one well-known foundation pointed out a dip in our job-retention numbers for clients who were more than fifty years old, and had the audacity to recommend that we stop admitting older people. As the article suggests, many issues are systemic, and new approaches are needed to create meaningful change.
Cassandra Lewis
Wilmington, Del.

•

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GOINGS ON

SEPTEMBER 6 – 12, 2023

What we're watching, listening to, and doing this week.

Leslie Odom, Jr., has loved the Ossie Davis play **"Purlie Victorious,"** from 1961, since Odom began using its monologues for auditions; now, for his first nonmusical Broadway role, he stars in its long-incoming revival, opposite the meteoric—and two-time Tony-nominated—Kara Young. In "Hamilton," Odom played Aaron Burr, a man perpetually kept outside the room where policy was made, but in this comedy he plays a man making change without asking permission, a quick-witted preacher rewriting the unrighteous bargains of the Jim Crow South.—*Helen Shaw (Music Box Theatre; previews begin Sept. 7.)*

ABOUT TOWN

CLASSICAL | Before Tom and Jerry, there were the comic-strip stars Krazy and Ignatz. At a free picnic concert, the **American Symphony Orchestra** plays John Alden Carpenter's "Krazy Kat: A Jazz Pantomime," evoking the lovelorn feline and murderous mouse as they cavort through a score of ingenuous strings and slapstick horns. Reviewing the first performance, for *Vanity Fair*, in 1922, Deems Taylor wrote that he had "realized a little more clearly what 'American' means." For Leon Botstein, the A.S.O.'s music director, "American" also means George Antheil's prancing "Jazz Symphony" and the moody, teasing "Music for Small Orchestra," by Ruth Crawford Seeger. The nineteen-twenties program, which includes additional pieces by Florence Price and by Aaron Copland, repeats at the Kupferberg Center for the Arts on Sept. 10.—*Fergus McIntosh (Bryant Park; Sept. 7.)*

ART POP | The singer-songwriter **Beck** and the French indie-pop band **Phoenix** make an intriguing pair of defining art-pop acts. In 1994, Beck broke through with the twangy "Loser," a folk-rap aberration that hinted at an experimental nature. In the years since, he expanded beyond hip-hop and alt-rock sampling, into mutations of funk rock, folk rock, R. & B., and trip-hop, with a career that culminated in a 2015 Grammy for Album of the Year. Phoenix, meanwhile, trafficked in a particularly beaming kind of pop rock throughout the two-thousands, peaking, in 2009, with the colorful "Wolfgang Amadeus Phoenix." After a detour into Italo disco, the band's most recent album, "Alpha Zulu," returns to familiar Phoenix delights: floating, lite yet sophisticated fun.—*Sheldon Pearce (Madison Square Garden; Sept. 9.)*

DANCE | The **Kaatsbaan Fall Festival,** in Tivoli, New York, rolls out in the course of three weekends. Its opening (Sept. 9-10) brings a revival of the English choreographer Kenneth MacMillan's "Ballade," a work last seen in 1972, which tracks the shifting attractions among three men and one woman, performed by a pickup group that includes two dancers from the Joffrey Ballet. On the second weekend (Sept. 22-23), the New York-based contemporary-dance company kNoname Artist performs a new work by its artistic director, Roderick George: "The Missing Fruit," in which hooded figures, collapsing bodies, and voices evoke traumas surrounding issues of race and class in America.—*Marina Harss*

BROADWAY | Sandy Rustin wrote her new Broadway sex farce, **"The Cottage,"** to seem like a throwback—and the director, Jason Alexander, asks his heavy-hitting cast to use hammy British accents and to smoke dozens of cigarettes, accordingly—but her script lacks the old genre's hacky but sturdy boulevardier bones. The first act reveals too much: Beau (Eric McCormack) and Sylvia (Laura Bell Bundy) jilt spouses (Lilli Cooper and Alex Moffat) who are themselves entangled; the second act mainly repeats this information. Rustin honed her tools on a much performed stage adaptation of "Clue," but here she's the murderer—it was the writing that did it, in the living room, using unwieldy exposition to hammer the jokes to death.—*Helen Shaw (Hayes; through Oct. 29.)*

TELEVISION | The Max animated series **"Harley Quinn"** is a pointedly buoyant riff on a comics franchise that's defined by its shadows. When Harley Quinn (voiced by Kaley Cuoco) dumps her boyfriend, the Joker (Alan Tudyk), he's quick to spread the narrative that she's a "crazy bitch"; never mind, she's out to earn her own fame as one of Gotham's premier scoundrels. The most ambitious episodes of the show, now in its fourth season, draw from Harley's background in psychiatry, and the intricate plotting extends to the playfully dirty but heartfelt romance between Harley and Ivy (Lake Bell). "Harley Quinn," potty-mouthed and dense with jokes, is a reminder that Gotham has always been a playground, and that its streets aren't just for facing off against thugs—they're for cartwheels, too.—*Inkoo Kang (Reviewed in our issue of 8/14/23.)*

MOVIES | The Senegalese director Ousmane Sembène's film "Black Girl," from 1966, was the first feature by a sub-Saharan African director to earn international acclaim, and his work—which confronted European imperialism and homegrown misrule—was at the forefront of world cinema throughout his career. Film Forum commemorates the centenary of Sembène's birth (he died in 2007) with a retrospective of his films (Sept. 8-21), including the historical drama **"Ceddo,"** from 1977. It's centered on the king of a predominantly Muslim village—harboring a white European slave trader and a missionary—in which an imam usurps power. When non-Muslims, fearing forced conversions, kidnap the king's daughter, civil war looms; the struggles within and between the locale's factions reach a nearly Shakespearean pitch of dialectical fervor.—*Richard Brody*

ILLUSTRATION BY BERNARDO RODRIGUEZ

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TABLES FOR TWO

gertrude's
605 Carlton Ave., Brooklyn

As soon as the chef Eli Sussman learned that James, a beloved Prospect Heights restaurant, was closing, he tried to contact the building's owner to inquire about the space, without luck. A couple of weeks later, Nate Adler, a restaurateur whom Sussman knew casually, invited him to drinks. Call it coincidence or call it *bashert*, the Yiddish word for predestined: Adler and his wife, Rachel Jackson, who own Gertie, a "modern Jew-ish diner," in Williamsburg, had secured the lease. They asked if Sussman—who had cooked at Mile End, a Montreal-inspired Jewish deli in Boerum Hill, before opening, with his brother, Max, a counter-service Mediterranean place called Samesa—was interested in going into business with them.

Subsequent conversations confirmed that the trio shared a vision for the restaurant that would become gertrude's just six months later, in June. "We wanted to describe it as a New York City bistro," Sussman told me the other day. They pulled inspiration from institutions such as Prune, Diner, and Minetta Tavern, as well as from their own backgrounds: "We talked about a menu that, if you had grown up eating specific dishes at your grandparents' house on specific Jewish holidays, would seem really nostalgic and familiar to you," Sussman said. "And, conversely, would be appealing even if you had no interest in Jewish cuisine. There's a chicken, a fish, a hamburger."

The result transcends expectations you might have for a neighborhood restaurant while also resisting gimmickry—though not humor. The half chicken is brined, cleverly, in dill-pickle juice before it's roasted. The excellent hamburger is sandwiched on a tall, shiny braided challah roll, which can also be ordered on its own, with a schmear of duck butter. All entrées, including a beautiful whole trout—stuffed with lemon rounds and showered with chopped green olives and herbs—come with a choice of fries, greens, or latkes. The latkes are available as an appetizer, too, topped with celery crème fraîche and trout roe—as elegant as a dish of thin-sliced coins of beef tongue, both tender and crispy, drizzled in a persillade made with parsley, garlic, capers, anchovies, and Fresno peppers.

The eggplant "schnitzel" (in quotes, Sussman explained, because if you added marinara and mozzarella it could be a parm) features a lengthwise slice of eggplant, deep-fried until its bread-crumb crust is impressively crunchy and its interior turns to custard. You might find the house chopped salad at a red-sauce joint, were it not for the beef salami, Swiss cheese, and caraway vinaigrette among the lettuce, chickpeas, tomatoes, and pickled onion. I loved a Niçoise that substituted hot-smoked bluefish for tuna, and was delighted by Jackson's Seder Plate Margarita, made with mezcal, bitter orange, parsley, and salt water. Next year in Jerusalem, next week at gertrude's. *(Dishes $8–$38.)*

—Hannah Goldfield

PICK THREE

The staff writer Doreen St. Félix shares her current obsessions.

1. A LONG FILM: Ever since Chantal Akerman's "Jeanne Dielman, 23 quai du Commerce, 1080 Bruxelles" was recognized by *Sight and Sound* as the best film of all time, I've been seeking out comparably lengthy films to watch. I like how the viewing experience becomes physical: my attention is tested, the clouds drift, I begin to starve. Late summer is the right time to have one's afternoon eaten up by **"A Brighter Summer Day,"** by Edward Yang, a singular and transcendent period piece, set in nineteen-sixties Taiwan, about a teen-age boy whose life is destabilized by a murder.

2. A LONG BIKE RIDE: I grew up in Canarsie, Brooklyn, surrounded by the overgrown ghosts of the Pennsylvania Avenue and Fountain Avenue landfills, which once operated on two peninsulas in Jamaica Bay. The area, over four hundred acres, had been impenetrable until 2019, when the city opened **Shirley Chisholm State Park.** The bike trail isn't too long—ten miles or so, with gorgeous views of the bay, New York Harbor, even the Empire State Building—but factor in travel there and back and you will have had quite the journey.

3. A LONG NIGHT: Ellen Bradshaw makes oil paintings of the city's transient elements—bridges, crosswalks, store façades. In her paintings, the city seems suspended in a time when it was less corporatized, when it was more hospitable to the hungers of nighttime flâneurs. Check out her scenes, on view in a solo show called **"Manhattan: Dusk to Dawn,"** at the Pleiades gallery, in Chelsea, through Sept. 30.

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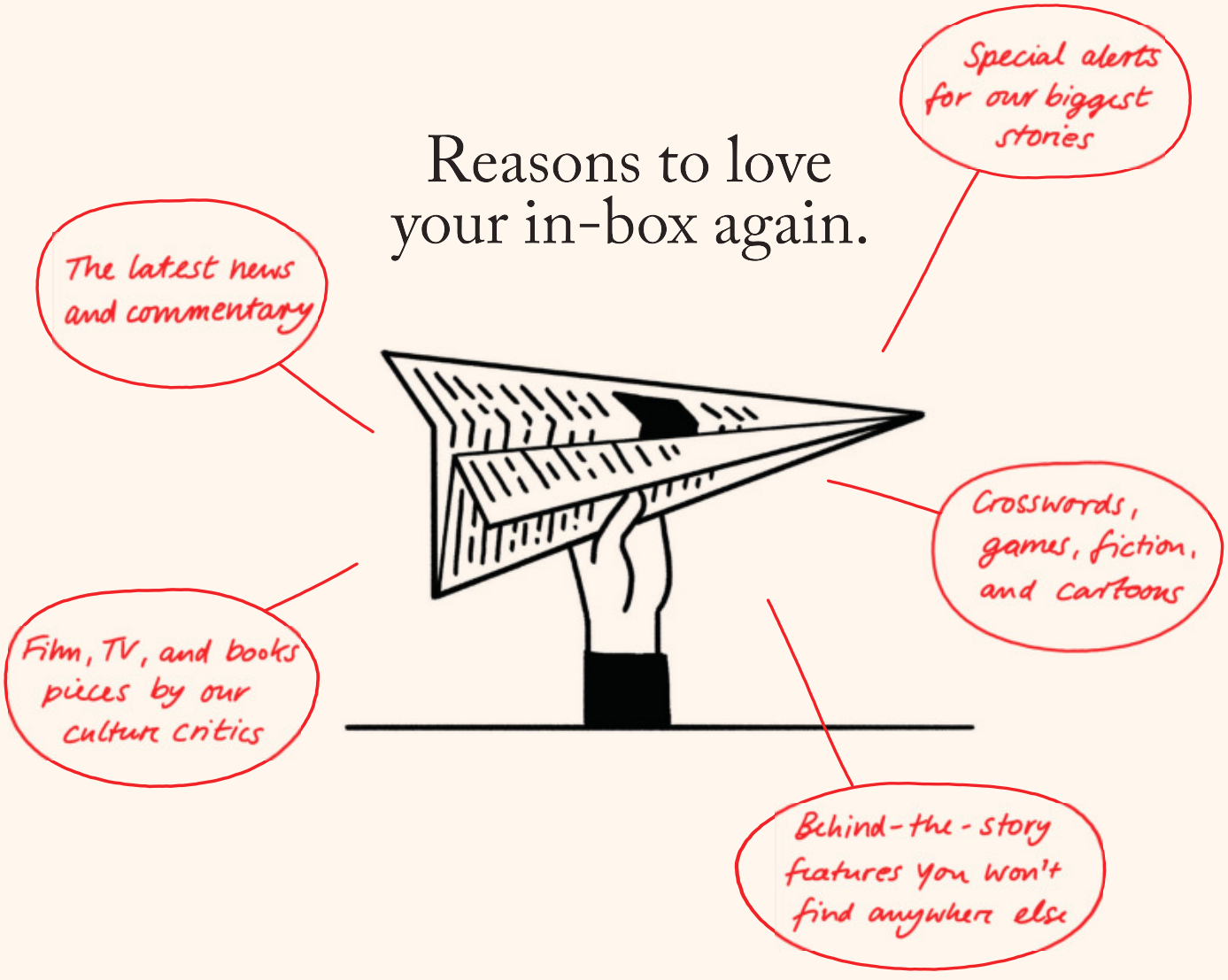
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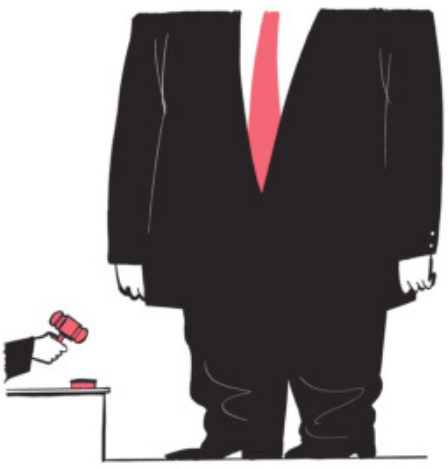
THE TALK OF THE TOWN

COMMENT
UNPARDONABLE

In early August, 1975, President Gerald Ford granted amnesty to a polarizing figure whose actions had posed a grave threat to American democracy. The man in question was not Richard Nixon, whom Ford had pardoned eleven months earlier, but General Robert E. Lee. After the Civil War, the prospect of prosecution had loomed over former members of the Confederacy. In 1865, President Andrew Johnson issued a proclamation that absolved most of them but excluded, among others, Confederate leaders and those who held property worth more than twenty thousand dollars. Three years later, Johnson, who felt that it was simply time to move on, issued another proclamation, which expanded the pardon to include the men, such as Lee, who had organized and led the rebellion. Still, having renounced their U.S. citizenship and taken up arms against the government, they were required to swear an oath of allegiance and make a formal request to regain their rights. Lee's application was lost—one theory holds that Secretary of State William H. Seward gave Lee's paperwork to a friend as a souvenir—and he died, in 1870, a man without a country.

When Ford reinstated Lee as an American citizen, albeit a dead one, he stretched the truth to the point of prevarication. Lee's character, Ford remarked, had been "an example to succeeding generations" and the reinstatement was therefore "an event in which every American can take pride." Nixon's pardon was far more controversial, but it followed a similar logic. Speaking to Bob Woodward, in the late nineties, Ford explained that Watergate had become such a debacle that there was no hope of making progress on any domestic or foreign-policy issue until it was resolved. He was, in his telling, motivated by concern for the nation's fate, not Nixon's. Despite the scale and the destructiveness of his predecessor's actions, he argued, it was time for the nation to move on.

Late last month, Donald Trump, the twice-impeached, serially indicted former President of the United States, arrived at a courthouse in Atlanta, Georgia, to face charges stemming from his alleged attempt to overturn the results of the 2020 election. By then, the spectacle of a former President being indicted had gone from unprecedented to old hat. In addition to the sprawling Georgia case, grand juries have returned indictments against Trump in a business-fraud case brought by District Attorney Alvin Bragg, in New York, and in two federal cases brought by Jack Smith, a special counsel for the Department of Justice: the first, in Florida, relates to the mishandling of classified materials, and the second, in Washington, D.C., to election interference. (Trump has pleaded not guilty in all of them.) The most damning charges appear in the election cases, which concern Trump's attempts to retain the Presidency after being voted out of office. Those attempts, of course, culminated in the January 6th assault on the U.S. Capitol—the most significant threat to the peaceful transition of power since the conflict at the center of Robert E. Lee's forfeited citizenship.



It is not entirely surprising that Trump's federal indictments have inspired murmured appeals for President Biden to issue a preëmptive pardon. (On the state level, it's difficult to imagine New York's governor issuing a pardon. In Georgia, the governor has no such authority.) After the first federal indictment, in June, Marc Thiessen and Danielle Pletka wrote, in the Washington *Post*, that "millions will see Trump's prosecution as illegitimate, and any conviction as unjust. That will further erode public confidence in our judicial system and the principle of equal justice under law." After the second, in August, an op-ed in the Miami *Herald* held that Trump should be pardoned "because the impact an extended trial and sentencing might have on our democracy is just too terrifying." The senseless sloganeering that produced the phrase "too big to fail" during the Great Recession

ILLUSTRATIONS BY JOÃO FAZENDA

has a contemporary corollary: too big to convict.

The common theme underlying these arguments is the sentiment that the Trump era was rancorous and difficult enough, and the work of upholding the rule of law is slow and protracted and will only deepen national divisions. It is time—let's say it in unison—*for the nation to move on*.

Of all the rationales for pardoning Trump, the most substantial is the contention that prosecuting political rivals is almost always the hallmark of an autocracy. Under most circumstances, this would be true. Yet the proponents of this argument seldom acknowledge the inverse—that the refusal to prosecute someone, or reflexively pardoning that person precisely *because* he's a political rival, is at least equally corrupting to a democracy. It's not unimaginable that thoughts of the Nixon pardon assuaged the members of Trump's inner circle as they rampaged over norms, policies, and laws. Abiding lawlessness among the powerful has a way of breeding more of the same. The relatively lenient terms of the Confederate amnesty, for instance, almost certainly facilitated the rise of violent white militias that nullified the voting and citizenship rights of Black people throughout the South in the Civil War's long aftermath.

It's also worth recalling that Trump glided into the White House buoyed by an understandable sense of his own impunity. Despite the years-long tax schemes, chronicled by the *Times*, and the claims of sexual assault made by more than two dozen women, there has always somehow been a reason not to prosecute Donald Trump. He has enjoyed the amnesty of wealth his entire life—a troubling exemption, though one that, unlike the current calls for amnesty, was never passed off as something in our collective best interest.

The key problem with "moving on" is the indeterminate direction. Where to? There are times when it is in the best interest of a nation not to seek justice despite egregious wrongs. South Africa's Truth and Reconciliation Commission, which was premised upon remorse and transparency, is one such example. Trump, whose campaign claimed to have raised seven million dollars in less than three days after his mug shot was released, adheres to opposite principles: belligerence and deception. At seventy-seven, for the first time in his life, he may suffer real consequences for his actions. In the short run, this will stoke deeper divisions and heighten animosities. In the long term, this is the safest course for a democracy to take. A pardon would embolden Trump and others like him. It would allow the nation to move on, but toward an even more dangerous future.

—Jelani Cobb

NEW JERSEY POSTCARD
GRAVES AND GOLF BALLS

For the graveyard-interested, the recently concluded LIV Golf tournament, played at former President Donald Trump's Bedminster country club, is notable for two juxtapositions: the grave site of Ivana Trump, alongside the first hole, and, about thirteen hundred yards away, the graves of Black Civil War soldiers. Finance experts and tabloids postulate that the location of the former is related to the tax-avoidance benefits offered by the 2003 New Jersey Cemetery Act. The location of the latter is related to the history of the state, which, in the last census before the Civil War, was the only state with enslaved Black Americans north of the Mason-Dixon Line.

The cemetery, a third of an acre on a forested embankment, sits along the old dirt road that connects the back of the golf course with Lamington Road, which passes white-fenced horse farms and hilltop estates. A plaque on an iron fence identifies it as the Lamington Black Cemetery. "There are 97 identified graves here: 36 with names and 61 unknown, including former slaves and free blacks, who were members of the Lamington Presbyterian Church," the marker says. "Remains of five Civil War veterans who fought heroically for the Union lie here." Yellow "Posted" signs by the burial yard make it feel off limits, but it's not.

Ditto a break in the woods across the street, a branch of the golf-course-circling Trump Trail, which connects to another Trump Trail near the cemetery's western edge. "As you walk through the grounds," the plaque continues, "note the Bible passages on some of the markers and enjoy the feeling of peace."

Historic Black burial sites in New Jersey are rare—there are estimated to be only about fifty. Accounting for them is complicated by the nature of slavery, with the enslaved often buried in unmarked graves. New Jersey, the last Northern state to end slavery, did so in 1866, six months after Juneteenth, recognized as the day the Emancipation Proclamation was read out by Union soldiers in Texas. Graves at the Lamington site are marked, often with the names of the families that enslaved the deceased, such as Todd, forebears of Christine Todd Whitman, the former governor, who is a member of the Lamington Presbyterian Church. The graveyard is also the resting place of several members of the U.S. Colored Troops, including William H. Van Horn, a private in the U.S.C.T.'s 43rd Regiment, and William Dodd, a private in the 8th Regiment. With scant training, Dodd's regiment went into battle at Olustee, in Florida, a site that is mostly remembered for a Confederate victory that was in fact a slaughter of captured Black soldiers.

Van Horn fought in Virginia, at the

Battle of the Crater, in 1864, where a bungled Union mission allowed Confederates to encircle Union troops; the surviving Black soldiers fought hand to hand, knowing that surrender was death. "The level of violence, exhibited toward black union soldiers," Kevin Levin writes in "Remembering the Battle of the Crater: War as Murder," "served no tactical purpose, but allowed Confederates to vent their fury in the face of what they perceived to be a racial order turned upside down."

If you climb up the stone stairs that lead to the Lamington cemetery, you come upon mostly sandstone grave markers, some standing but tired, some fallen. Dates and engravings are legible, if blurred: "Asleep in Jesus," "Blessed are the dead which die in the Lord." The history of the cemetery's neglect begins with the disappearance of the Black community, which moved to cities to find jobs. Beginning in the nineteen-twenties, local farms were bought up by Pfizers, Scribners, Forbeses, and Onassises. In 1981, John DeLorean, the not yet bankrupt carmaker, paid three and a half million dollars for the Cowperthwaite estate, which Trump would later buy and transform into a country club.

In 2000, a contractor for the in-progress golf course noticed a flag marking a gravestone, spurring a renovation and a rededication with a twenty-one-gun salute. Today, the property is minded by David Smith, who is a volunteer from the Lamington church. The last time he hosted a visitor was on Juneteenth. Unanda Bell, a Bedminster resident, fairly new to the area, had happened to notice the cemetery on Facebook that day and stopped by. Smith told her about how he and his son had cleaned up the mess when one of the soldiers' headstones survived a tree falling on it during Hurricane Sandy. "I was probably a member of the church three or four years before I even knew this was here," he said. "In the fall, I bring some friends down and rake and clean."

"Can more people be buried here?" Bell asked. Smith didn't know; he'd never been asked. They walked for a while, quietly reading gravestones. After a time, Bell said, "O.K., I'm coming back, and I'm bringing my boyfriend, and he's a veteran—or, well, reservist, so he can help."

"Oh, yes, please," Smith said. "Do come back!"

—Robert Sullivan

ADAPTATION DEPT.
BAT-MITZVAH GIRL

The 2005 young-adult novel "You Are So Not Invited to My Bat Mitzvah," by Fiona Rosenbloom, a pen name of Amanda Stern, recounts the falling-out of two best friends, Stacy Friedman and Lydia Katz, over an unworthy boy, and Stacy's quest to perform three mitzvahs before her bat mitzvah in order to make things right. It was updated and adapted (more texting, wokeness, lip filler) into a new Adam Sandler movie featuring his two daughters. The other day, Stern stopped by Bloomingdale's to shop for the perfect bat-mitzvah dress for the bat mitzvah she never had. The store's "Barbie"-themed window display promised "Best party ever!"

"So, we're thirteen," Stern, who is several decades past thirteen, riffed, perusing the racks. "You're my bestie. You're my moral support sitting in the front row."

The hypothetical bestie pulled out a ruched lime-green minidress.

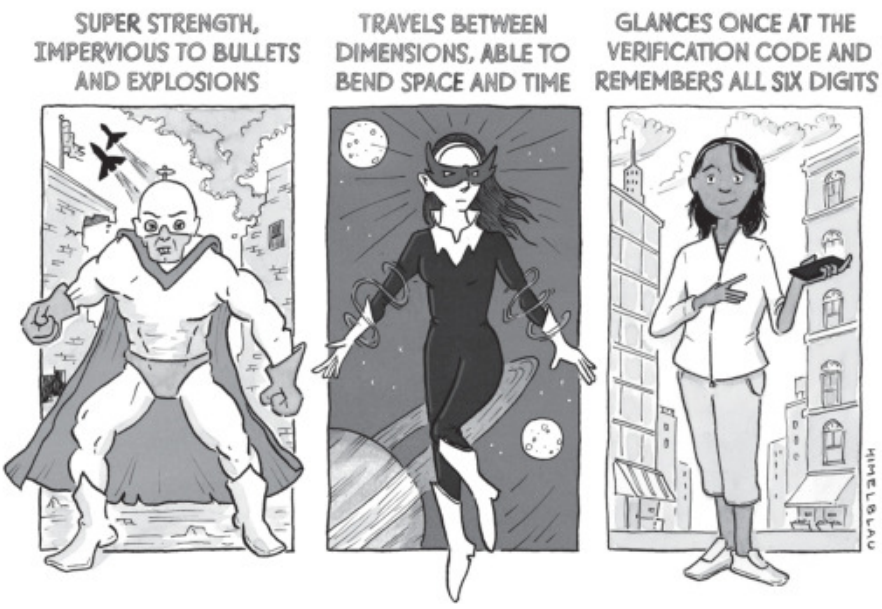
"Green is *not* for us," Stern said. "Could my bat-mitzvah theme be Taylor Swift? Is that what the thirteen-year-olds like?"

Unlike her book's protagonists, who live in Westchester, Stern grew up in Manhattan and attended the Nightingale-Bamford School, on the Upper East Side—"I spent four years working on getting kicked out and I succeeded"—and then Friends Seminary, downtown. In high school, she co-wrote and acted in a play, "Sometimes I Wake Up in the Middle of the Night," which was produced Off Broadway. It was "about the trials and very rare tribulations of being a teen-ager in New York City," she said.

She refocussed on her imaginary-party planning. "All right—theme, theme, theme. Oh, the nineties!" She fingered some black Ganni slingbacks, and ruefully noted, "These aren't nineties." She continued, "I guess I'd have to get fancy Doc Marten boots, if that exists."

"I'm Generation X," she said. "When I was growing up, the bat mitzvahs didn't have themes. The theme for the bat mitzvah was bat mitzvah. The biggest thing was what we were going to wear." At Bloomingdale's, she wore a T-shirt, cutoffs, and pale-pink studded ankle boots. A tiny dog in a frilly dress walked by (accompanied by two actual teens). "I could wear that, but it's currently being worn by someone cuter," Stern said.

She recalled the first bat mitzvah she attended. "I was a really awkward, funny-looking kid," she said. "And I somehow decided that a sweaterdress would make me pretty." Hers was a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HIMELBLAU

heather-gray turtleneck—"I was sixty pounds. It just *hung* on me." When she arrived at the temple, "I was one of forty-seven girls wearing sweaterdresses. It was so deflating."

No closer to finding The Dress, she sat down at Studio 59, the Bloomingdale's bar, ordered hummus, and explained that she'd rewritten parts of the book for its recent reprinting: "I started reading through it and I was, like, 'Yeah, this is problematic.'" Stacy's fat (and bullied) younger brother is now a gawky genius. Stacy implores God for: "More follows on TikTok. An Oculus Quest headset. World peace." Gone are the Sean John backpacks and Seven jeans. With the help of a friend's thirteen-year-old, Stern added some contemporary lingo: "cap," "ship."

She described her own four-girl middle-school clique: "We were all BFFs," she said. Two were Jewish. Two were not. "That was never a big deal," she said—until, in seventh grade, students were given the option of taking a Jewish holiday off. The Jewish girls showed up at school; the goyim went to the movies without them.

"*Betrayal*," Stern said. "It was the biggest fight I think I've ever had in my life. It ended up with one of the moviegoers slapping me across the face in front of the entire class. She slapped me because I called her—this is unprintable—I called her a 'cock-sucking dyke,' which totally makes sense." The girls reconciled. "She is one of my best friends to this day," Stern said. One of the other friends, she added, eventually "taught me about puberty and how to give a blow job, and she put a tampon in me, which was too confusing—it was parallel parking when you can't see over the steering wheel."

In addition to a new novel for adults and a newsletter "for those who want to live more easily in a world that often feels too hard," Stern is currently working on an online course for parents of anxious kids. Her top advice: "Don't lie to them."

Stern Googled "nineties fashion dress" and pulled up images of spaghetti-strap frocks over white T-shirts. "That's it!" she said. "That is what they used to call a baby tee." She hit the racks again and pulled out a diminutive T-shirt with a young devil in a Martini glass and the words "BORN TO RAISE HELL" on it ($150). Free People had some spaghetti-strap dresses, including a navy one with a floral pattern, on sale for $76.80. Stern held up the ensemble and admired her handiwork. "That was a little stressful!" she said. "But we persevered, and it paid off."

—Emma Allen

BRAVE NEW WORLD DEPT.
WHEN BEDS FLY

The future as imagined by the people of the past was here—at least briefly. It was designed by Bumblebee Spaces, a San Francisco company that aimed to enhance the utility of your living space by stashing what you don't need at the moment—bed, desk, snowshoes, classified documents—way up in the room's stratosphere, a volume otherwise barely used unless you're Fred Astaire and can dance upside down. Bumblebee Spaces recently decided to close up shop, citing a failure to secure its next round of funding, but before its robotic furniture went the way of the Edsel, five Gen Z-ers, two millennials, one Gen X-er, and two immature senior citizens walked into a studio apartment in the Smile, an East Harlem rental building, to check it out. Six storage receptacles and a queen-size bed were tucked away in the ceiling, ready to be summoned downward on a whim with the push of an iPhone button. For those who want to boss around inanimate objects verbally, a voice command would also get the movables moving.

"Who wants to see what's inside the 'Essentials' cubicle?" one of the senior citizens asked, eyes turned upward. The ceiling was covered with rectangular boxes surrounding a bed; it looked like the world's most boring jigsaw puzzle. (The company also made disappearing desks.)

The "Essentials" cubicle descended to the floor; inside was a pair of scissors and a belt. Nobody knew whose they were, but this was a show apartment, and presumably the items were part of the show. Each storage module contained a camera that allowed a user to see the contents on a phone screen. Software assigned labels to each item; you could ask the app to retrieve your Rollerblades and, voilà, your Rollerblades would descend. Bumblebee Spaces was founded in 2017 and let users retrofit a space piecemeal—a storage console went for three thousand dollars, a bed, fourteen thousand. Ashton Kutcher, an investor who has installed the furniture in his house, enthused about the company on Kelly Clarkson's show in February. It's "what you have to get and you'll be the happiest human!" he said. Some seventy per cent of the company's business was partnering with real-estate developers, equipping units with its electromechanical razzmatazz. Bumblebee's levitating furniture is in more than thirty buildings around the world, including in Canada, Germany, and Japan, with nine in New York City. The Bumblebee-enhanced studios at the Smile are all smaller than six hundred and fifty square feet and go for about twenty-eight hundred dollars a month; they can moonlight as a one-bedroom.

It was time to summon the bed. The visitors scampered out of the way, hugging the walls, so as not to be crushed by the two-hundred-and-fifty-pound berth (including Casper mattress, blankets, and pillows). In fact, the bed's depth sensors are programmed to stop its descent if anything is detected below. "Hello, Bumblebee," one of the senior citizens said. "Lower my bed."

"Of course," said a robotic voice that sounded like Alexa's cheerier cousin. "Lowering the bed so you can get a restful sleep." As the bed slowly descended, attached to the ceiling by aramid-fibre straps, four legs materialized, splaying in preparation for touchdown.

"I find the speed to be chill and calming," the Gen X-er said.

"It's freaking me out," one of the Gen Z-ers commented.

"It reminds me of an alien spaceship alighting on planet Earth before it colonizes us," the other senior citizen said.

Bumblebee Spaces was co-founded by Sankarshan Murthy, a forty-three-year-old engineer who used to work at Apple and Tesla. "We would argue about how to get another micrometre of space in the Apple Watch or the Tesla Model 3," he said, in a telephone

call. "But where you're paying the most for space is really the home. I wanted to optimize that space. At the time that I was trying to figure this out, I was watching Mickey Mouse cartoons with my kids. They had a home that magically transformed—it could transform into a kitchen when Goofy was cooking, or a fashion runway when Minnie was doing fashion. I wanted to build a Mickey Mouse Clubhouse in my garage—and that was the beginning of Bumblebee." He acknowledged that the Murphy bed has been around since 1911, "but until recently homes weren't ready. They were made with concrete and sticks."

At one point, one of the millennials found a ceramic shard inside a drawer. "It fits perfectly!" she said, positioning the piece in the rim of a vase with a chunk missing. Hmm. The vase rested on a credenza placed perilously close to the trajectory of the bed.

—Patricia Marx

THE PICTURES
WORST VERSION

The Chilean filmmaker Sebastian Silva surveyed a Brooklyn gay bar the other night and found it wanting. It was too cold, too empty, and he was starving. He pitched a companion, the writer and actor Jordan Firstman, on an alternative: Speedy Romeo, a pizza joint. The place was packed, and Silva wasn't getting anywhere with a surly waitress. "What can we do to get her to like us?" Firstman asked. "I don't think she has a problem with *us*," Silva said airily. "It's just life."

Their responses—Silva's blithe nihilism, Firstman's wish to make nice—mirrored the dynamic in "Rotting in the Sun," a new pitch-black satire in which the two play versions of themselves. The film Sebastian is a suicidal auteur who pores over E. M. Cioran's "The Trouble with Being Born"; the film Jordan, like his real-life counterpart, is a comedian who got famous on Instagram during lockdown (in one viral bit, he is banana bread's publicist).

Silva, dressed in a pink baseball cap and a gray hoodie, noted that the "death wish" in the film was his own; so were the dog, the apartment, and the building manager. (One of the only professional actors in the cast is Catalina Saavedra, who plays Sebastian's housekeeper and gradually emerges as the star.) Silva is known for his fine-grained, occasionally brutal insights about human nature. At the film's New York première, he was introduced as a purveyor of "existential dread"—a compliment that alarmed him.

One of seven siblings in a conservative Catholic milieu—his eldest brother is now a prominent far-right lawmaker in Chile—the young Silva, who was in the closet, gravitated toward psychedelics and philosophy, devouring Castaneda. "I couldn't wait to be eighteen to do mescaline," he said. The impulse shaped his 2013 breakout film, "Crystal Fairy & the Magical Cactus," in which Michael Cera plays an American tourist in Chile embarking on his own hallucinogenic quest.

Silva and Cera also collaborated on the psychological thriller "Magic Magic," but for "Rotting in the Sun" Silva found himself in need of a new annoying American. "I was thinking it could be more of a bro-ish real-estate guy who's buying and selling houses during the pandemic," he said. Then he met Firstman, on the streets of Mexico City. Firstman, who had recently rewatched "Crystal Fairy," invited Silva to dinner, where he brought up his Instagram. A few weeks later, the director called him. "Dude, I just watched your Instagram. It's *so* embarrassing," he said—then asked him to be his leading man.

"I was already so disillusioned by the Internet and my own persona at that point," Firstman, who was wearing silver hoop earrings and a white shirt, recalled at Speedy Romeo. "So it came at the right time for me, where I wanted to explore the darker side." He added, "If I had never seen one of your movies, there is no way I would have done this. There's zero chance in hell I would have used my name. Or my cock!"

Firstman was raised on Long Island and was openly gay by the time he was a teen-ager. At twenty-one, he moved to Los Angeles without a plan; after a series of short films and writing gigs on

Sebastian Silva and Jordan Firstman

such shows as "Search Party," his viral impressions made him a social-media celebrity. Until the dinner in Mexico City, Silva had inhabited a totally different corner of the Internet. "I don't follow influencers. I don't follow people that post selfies. I don't follow actors," he said. He pulled out his phone to demonstrate the kinds of clip that Instagram served him: a cat video scored to Beethoven's Fifth, political stuff, a monkey eating a banana.

"It does show how tailored the algorithm is," Firstman said, refilling their wineglasses. "I can't escape culture, and you can't even *get* to culture."

After "Rotting in the Sun" screened at Sundance, culture came to Silva. Robert Pattinson had signed on as a producer. The film was embraced by such auteurs as Pedro Almodóvar. Its matter-of-fact treatment of suicidal thoughts led to a flood of D.M.s from viewers with similar experiences. It was a vulnerable place for Silva to be, but also a surprisingly comfortable one. His instruction to all his actors, he said, was "Just be the worst version of yourself."

Firstman had no trouble with that. "My biggest laughs in real life are usually at the expense of other people," he said—generally people, like the Jordan in the film, who have no idea how they're coming off.

Silva agreed, but added a distinction: for the joke to land, you need someone to share it with—a moment of conspiratorial connection. "For me, it's seeing someone like that, then making eye contact with a friend."

—Alex Barasch

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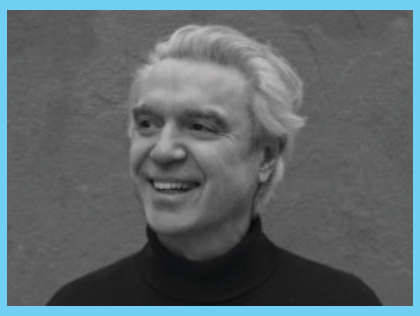

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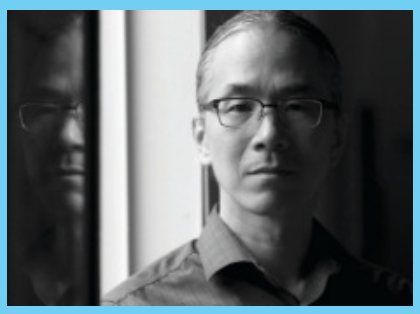

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Japanese Breakfast's Michelle Zauner

PARAMORE BY ZACHARY GRAY; MICHAEL POLLAN BY TABITHA SOREN; CURTIS SITTENFELD BY JENN ACKERMAN; JOHN TURTURRO BY MAARTEN DE BOER; COLSON WHITEHEAD BY CHRIS CLOSE; "WEIRD AL" YANKOVIC BY ROBYN VON SWANK; JAPANESE BREAKFAST BY HYUNWOO MIN

DEPT. OF PUBLIC HEALTH

YOU'VE BEEN SERVED

One lawyer's mission to find the lies in what we eat.

BY SARAH LARSON

From seltzer to Pop-Tarts, Spencer Sheehan has waged war against an industry.

In 2021, Duval Clemmons, a retiree from the West Bronx, went to his local BJ's Wholesale Club and discovered a pleasant surprise in the dairy aisle. Clemmons, sixty-eight, had a long career as a maintenance worker, but was disabled when he fell down some subway stairs, in 2009. "I'm trying to eat healthy when I can, and when I can afford it," he told me recently. "So when I seen plant-based butter, I said, 'Oh, this is *real* cool. This is what I *need*.'" What he saw was Country Crock Plant Butter Made with Olive Oil, a product with a green lid and a label showing a leafy olive branch floating above a buttered slice of toast, with the words "New!" and "Dairy Free" in delighted-looking cursive. "Most margarines, they don't put pictures of the ingredients," Clemmons went on.

Clemmons, like many of us, had veered toward margarine in the late twentieth century, believing it to be a healthier alternative to butter. "Margarine was my go-to thing," he told me. "Margarine was amazing. But when I found out that it's also an artery clogger, in the early two-thousands, I switched over to olive oil." Clemmons knows many people with heart disease; some of his friends have died from it. He bought the Country Crock and began to eat it on his toast. A few months later, he saw an image of the product online, in an ad looking for members of a class-action lawsuit. Reading, he made a startling discovery: the spread wasn't made of olive oil, or even mostly made of olive oil. The primary ingredient was a processed blend of palm and canola oils. "I'd been drawn in because of the picture," Clemmons told me. "And they knew that. I'm *sure* they knew that. Why wouldn't people be attracted to things that are natural?"

In 2022, the attorney who had placed the ad, Spencer Sheehan, of Great Neck, Long Island, named Clemmons as the lead plaintiff in a lawsuit against Upfield U.S., Inc., the makers of Country Crock. The complaint alleges that this "so-called plant butter," as Sheehan described it to me, is margarine in disguise. "Since the dawn of recorded history, humans have enjoyed butter, made from fresh cream and salt, on a farm," Sheehan's complaint begins. "For the past 150 years, imitators of butter have attempted to sell yellow-colored blends of beef tallow and vegetable oil to consumers as butter, through the product known as margarine." Sheehan asserts, reasonably, that we seek out olive oil for its health benefits, which palm and canola oils lack. Also, Country Crock Made with Olive Oil had twice the calories of Country Crock Original, and was more expensive.

Sheehan, forty-four, specializes in consumer-protection class-action suits. Specifically, he focusses on packaged foods, and on the authenticity of their ingredients and flavors. Sheehan has sued the makers of frosted strawberry Pop-Tarts (dearth of real strawberries), Hint of Lime Tostitos (absence of lime), Snapple "all natural" fruit drinks (absence of natural juice), Keebler's fudge-mint cookies (lack of real fudge and mint), Cheesecake Factory brown bread (insufficient whole-grain flour), Trident original-flavor gum (lack of real mint, despite package's illustration of a blue mint leaf), and many more, generally seeking millions in damages from each. He also pursues class actions unrelated to food, involving subtle fraud in products such as toothpaste (Tom's of Maine Fluoride-Free Antiplaque & Whitening, for containing no ingredient that fights plaque) and sunscreen (Coppertone Pure & Simple, for being neither). Sheehan emphasized this breadth of scope during our first phone conversation. "It took Matthew McConaughey years after that movie he did with Sarah Jessica Parker—'Failure to Launch'?—to be taken seriously as an actor," he told me. "No one likes to be typecast."

But Sheehan has been typecast, with

ILLUSTRATION BY JORDAN SPEER

his tacit approval. He's a food-label zealot, and is especially relentless with vanilla cases. (Tabloids have called him "the vanilla vigilante.") "Real" fruit and artificial smoke flavoring are in his crosshairs, too. Since 2018, Sheehan's firm has filed more than five hundred consumer-protection class-action suits, making New York one of the top states for such cases. At annual food-law conferences, presenters displaying litigation trends provide two sets of statistics: one including Sheehan's cases, one without. Some of his lawsuits, including one involving an "aged vanilla" claim made by A&W Root Beer, have resulted in multimillion-dollar settlements; some make headlines; many are dismissed. Defendants and judges "might roll their eyes at a case," Sheehan said, "because, yes, it can be somewhat amusing. But I can proudly and honestly say I've never been sanctioned by a court for filing anything frivolous."

To the outside observer, some of the quiet comedy of Sheehan's work comes from the fact that we don't necessarily consider snack-food flavoring to be "real," and from the startling idea that anyone would. For Sheehan, though, the farce is the deception itself. " 'Smokehouse' almonds," he muttered. "These almonds have never *seen* a smokehouse in their— and Blue Diamond never *owned* a smokehouse, either." He has sued the company eleven times.

Sheehan's firm occupies a suite in a five-story office building in Great Neck, a well-off village about forty minutes from Manhattan. It's part of New York's Third Congressional District, the one that elected George Santos and wishes it hadn't. The village's quaint center has the vaguely Tudor design of Brookline or Forest Hills, and a giraffe-print bench emblazoned with the words "GREAT NECK." When I first visited Sheehan, he was alone, in a windowed office next to some cubicles. The space was undergoing noisy renovations—the firm had grown from two employees to eight in three years—and everyone else was working from home. Sheehan, who has a boyish face and affect, wore a pink gingham shirt and a thick tan cardigan. It was a seventy-five-degree spring day, and a space heater that said Comfort Zone was on.

"Specialization can be really nice, like a warm blanket," Sheehan told me. The day's work included a Zoom call with an attorney representing Upfield, the margarine conglomerate; a meeting with a judge, involving a berry-flavored-Fanta case; updating a plaintiff about a Kroger apple-juice-cocktail situation (" 'Cocktail' is one of those weasel words"); and writing a complaint in a "slack-fill" case, involving a too-empty box of Sour Jacks candy. Sheehan turned and smiled after typing "46% full" into a document. "I do some of my best work after everybody goes home," he said.

Cases come to Sheehan via many sources, including leads from the public and his own observations. He gave me an example. "So somebody contacted me about those little Fireball bottles," he said. He was talking about Fireball Cinnamon, a beverage that looks like a tiny bottle of Fireball Cinnamon Whisky—red cap, auburn-colored liquid, label bearing Fireball's signature fire-breathing dragon. But Fireball Cinnamon doesn't contain whiskey; it's a malt beverage with whiskey flavors, which it indicates in fine print. Sheehan was suing its parent company, Sazerac, for fraud. "We're used to seeing mini bottles of alcohol, and we expect it to be hard liquor," Sheehan told me.

"Like, you wouldn't buy a tiny beer," I said.

"That's right," he went on. "When most people see it, especially in places like a gas station or convenience store, where they sell these 'sin tax' products—tobacco, the lottery, it's up there with all the bad stuff—booze isn't so far-fetched. You're going to see something familiar and say, 'Hey, I'll buy it.' "

He looked into the Fireball situation, discovered that he had a potential case, and took out an ad seeking class members—people who'd assumed they'd been buying whiskey—on social media. "And it asked them to contact me, sort of like, 'Have you or your loved one spent time at Ground Zero after 9/11?' " he said. "I'm sure we've all heard those ads on the radio or on TV."

Sheehan pays a marketing company to handle the placement of his ads, primarily on Facebook, and to sometimes list them on Web sites such as Top Class Actions, where people can peruse cases. He follows up with those who respond, explains what's involved ("I tell people that it's almost like jury duty or voting—don't do this because you're expecting any money"), and files a lawsuit. Each case has a named plaintiff, someone who represents the class, and who typically gets an incentive award if there's a settlement. "Usually a few thousand dollars," Sheehan said. Sheehan is paid through fees that accompany settlements; none of his clients are charged.

Sheehan views himself as a tribune of the masses. "We are acting on behalf of the public," he told me. "That's what the consumer-protection laws of each state are designed for." Most regulations on food labelling and representation emanate from the federal government, namely the Food and Drug Administration. But states can supplement those laws—New York's proposed warning labels on sugary items, for example—and, more important, decide how to enforce them. In Sheehan's opinion, they barely enforce them at all. "One of the differences between our country and places like Europe, where they don't have as many lawsuits, is that they have much broader government enforcement and supervision," Sheehan told me.

He tidied up some file boxes, which were full of empty bottles and wrappers: Haribo, Annie's, Hall's, Perrier, Ice Breakers spearmint Ice Cubes, Kellogg's Harvest Wheat Toasteds, Twizzlers, and so on, all waiting to be scrutinized. "People send me these things," he said. It was time for his Zoom call with August Horvath, a partner at the law firm Foley, Hoag, which represents Upfield in the Country Crock Made with Olive Oil case. "He's an egghead, an intellectual," Sheehan said. He and Horvath have squared off many times, and their dynamic recalls the Looney Tunes wolf and sheepdog, who exchange pleasantries before punching in for a day of battle. A blank box with Horvath's name appeared onscreen.

"Hello!" Sheehan said. "August, you're not on video?"

"I'm not having a great hair day," Horvath said. Sheehan warned me not to talk much: "These guys love to fight about everything."

It's a common experience in consumerhood, and in life itself, to imagine that how something is presented at least approximates its reality, and to be disappointed to discover that it does not—that we've been hoodwinked, even if subtly,

for the benefit of the seller. (Think of Ralphie, in "A Christmas Story," when his long-coveted decoder pin from an Ovaltine-sponsored radio show finally arrives, only to reveal a secret message that tells him to drink his Ovaltine.) Americans, especially, understand the compact of commerce, and rarely begrudge our role in that near-patriotic process. But nobody wants to be a sucker.

Salesmanship becomes particularly complex in the vast middle of the supermarket, where "edible food-like substances," as the writer Michael Pollan has described them, are sold, between fresh produce on one end and chilled dairy on the other. Makers of processed foods, which are the main target of Sheehan's investigations, expend considerable effort trying to convince consumers that their products are healthy, "natural," and desirable, and we expend some effort believing them, often so that we can enjoy the products' deliciousness. "The field is all about connotation, whether verbal or visual," Jacob Gersen, the director of Harvard Law School's Food Law Lab, told me. "Traditionally, private market gets the front of the package, and government gets the back." Front labels give us images of farms and fields, and talk of antioxidants, fibre, omega-3s, vitamins, and probiotics; on back labels, we find "natural and artificial flavors," high-fructose corn syrup, carrageenan, soy lecithin, and xanthan and guar gums.

The gap between these realms is Sheehan's wheelhouse. On a humid day in August, Sheehan and I visited King Kullen, a supermarket in Manhasset, Long Island. Sheehan approached its terrain the way a finely tuned metal detector approaches a beach. "Potato rolls," he said, picking up a package and looking skeptical. "It might be impossible to make a roll that is predominately potato flour." He talked about the F.D.A. and its establishment, in the nineteen-forties and fifties, of thousands of pages of standards, and the particular challenges of artisanal bread. In the jelly-and-jam section, he palmed a jar of Polaner All Fruit. "I had a case against this product," he said. "It's not all fruit, because it has citric acid and natural flavor. I even let them slide on the pectin." He paused, then added, "There is no technical barrier to selling a product that actually is all fruit."

Much of Sheehan's work—and the work of the judges and lawyers he spars with—involves parsing the mind of the "reasonable consumer," a figure who, in her mystery and authority, can seem nearly mythical. As Sheehan sees it, the reasonable consumer isn't necessarily a highly educated professional, or "LinkedIn type"; she's a regular person with a regular job. She trusts that a product's name and packaging imagery closely resemble its contents. In the view of most courts, she isn't overly credulous—she expects fruit in her jam, but not in her Froot Loops—and, to Sheehan's repeated frustration, she probably knows that "vanilla" denotes a flavor, not an ingredient.

We passed a rack stocked with Sheehan's old foe, Blue Diamond Smokehouse Almonds. In one pending case, a court agreed that the bag's color scheme evoked fire, suggesting, wrongly, that the flavor was drawn from a natural smoking process. Nearby, at the butter-and-margarine cooler, Sheehan noted another layer of deception. "If it's more than eighty per cent fat, they have to call it margarine," he said. "So they make it seventy-nine per cent. Nobody wants to be called margarine." He picked up a container of Country Crock with Olive Oil; his suit is ongoing, but the company had already removed the word "Made." (Beside it: Country Crock with Avocado.)

A packet of tortillas reminded Sheehan of a suit in which the company's "use of a Mexican flag" overdid its supposed Mexicanness; a row of flavored Poland Spring sparkling waters made him light

up. "I'm responsible for the change of this label, but nobody will ever admit that," he said, picking up a bottle of its lemon variety. "It used to say 'a twist of lemon.' This—'lemon flavor'—is a little better, but not technically compliant." Sheehan's case was dismissed, and the labels looked a little haphazard, as if someone had added the word "flavor" under duress. (Poland Spring attributes the change to "a brand refresh.") In the dairy section, he pointed out a dubiously Icelandic yogurt he'd sued ("It was made in Brooklyn or something. I thought our case was very good"), mentioned cases he'd filed against various creamers, and shook his head at a box of milk-chocolate-covered Dove ice-cream bars. "These should say 'milk chocolate *and fat or vegetable-oil* coating,'" he said.

"That sounds disgusting," I said.

"It might sound patrician, but it enables people to make decisions of quality," he said.

As we strolled the aisles, Sheehan, who hadn't planned to buy anything, picked up a basket and began to fill it. He rooted around a floor-level canned-tomato shelf, telling me about San Marzano certification standards, and noted a brand that was noncompliant: "That's good, because now I can sue them again." He feistily observed that Kind granola's large-font "10 grams of protein" claim assumes that you'll be eating a cereal bowl full of it. At self-checkout, Sheehan rang up several products to examine for potential lawsuits, as well as a packet of dried apricots. "The problem with dried apricots is, you eat the whole bag," he said. Then we went for pizza, his usual dinner; Sheehan doesn't cook.

Sheehan, the son of a speech therapist and a carpenter, grew up on Long Island, and on our drive he pointed out his boyhood home, a tidy gingerbread-style house on a pleasantly appointed street. Sheehan is unmarried and close to his family. (His mother lives across town.) A vegetarian, he volunteers with local animal-rescue groups, and he travels with a Havahart trap in his car, for capturing strays. He set up heated sheds for feral cats in his mother's back yard, opposes society's "anti-cat bias," listens to the pro-cat radio personality and Republican eccentric Curtis Sliwa, and does pro-bono work for people with "nontraditional animal companions," including the eighties subway shooter Bernhard Goetz, in an eviction case involving an alleged pet squirrel. (The case was settled out of court.) When I was in his office, he occasionally interrupted himself to reach out to his parents—calling his mom "just to say hi" mid-discussion of wheat labelling, sending his dad a video of a baby raccoon. "I love raccoons," he

said, as the raccoon made squeaky noises.

Sheehan did well in school, but he didn't have any particular passions. He studied history at Georgetown and spent time in the U.S. Marine Corps Reserve. He eventually went to law school, at Fordham, but he didn't have any particular ambitions there, either. After winning a class-action suit against a streaming service—its subscriptions were un-cancellable—he took on some food-related cases, and enjoyed them. He opened his practice in 2013. "I take what I do very seriously," he told me. "I enjoy the intellectual aspects of it."

Some would argue that he takes it too seriously—that he's a hammer searching for nails. I asked an attorney who has represented several food companies about Sheehan's work, and cases like it. "I've seen some honestly good cases that Spencer has filed," he said. At the same time, he went on, "I think one of the necessary characteristics of a lawyer is a client—you know, lawyers should be representing the interests of a party that is genuinely aggrieved." Sheehan's clients are occasionally unsolicited, but many of them are enlisted through ads. "And lawyers running around doing their thing without clients is bad for society," the attorney said. "I don't want to romanticize it too much, but in Japan, when the warlords collapsed, there were these samurai just running around—they were just warriors with no masters, right? And they were causing all kinds of trouble in nineteenth-century Japan."

Sheehan's warrior zeal is not entirely unrestrained. At his office, a prospective client called, railing against the forces that sold him a deconstructed Ping-Pong table. The man, a retired music producer ("Harry Chapin, Bette Midler"), had ordered the table online, from Walmart, but it was made by an overseas manufacturer. Reviews said that it was easy to set up; it wasn't. "It says 'four-piece,' but there are over three hundred pieces," the man said. "There *is* no manufacturing. The company is an absolute lie." He'd spent several days trying to put the table together, called Walmart ("All they offer to do is send you another bag of parts!"), and thrown the whole thing out in disgust. "This is gross," he said.

Sheehan wasn't optimistic. Walmart wouldn't be liable, and suing a foreign company would likely be fruitless. "I hate to tell people this, especially when they have a legitimate complaint, but not everything that is wrong can or should be fixed through a lawsuit," he said.

"These guys are laughing at us!" the man said. "They gather some material, they throw it in a box . . ." he trailed off. "Imagine if you bought a car and they put a thousand pieces in your driveway." Sheehan suggested that the man "politely" write a review on Walmart's site, with pictures, then asked him to keep Sheehan in mind for potential mislabelling cases, whether "a TV or a certain cosmetic product." He gave similar advice to a woman who wanted to sue the Post Office over a P.O.-box imbroglio.

In the cases that Sheehan pursues, plaintiffs and class members provide depositions, often over Zoom, in which they are sworn in, pledge to tell the truth, and proceed to answer questions from an attorney representing a multinational corporation about their experience with a can of butter spray, a wedge of cheese, or a loaf cake. These can be strangely poignant. The class members don't evoke the snack-food equivalent of a neck-brace-wearing personal-injury firebrand; they're regular people describing consuming a grocery item, with softly disappointing results. In the case of Williams et al. v. Molson Coors, the defending attorney had one of Sheehan's clients, a gym-membership manager, recount her experience buying a twelve-pack of Vizzy Hard Seltzer, which stressed the presence of "antioxidant vitamin C."

"And when you saw the statement about antioxidant Vitamin C, what did you take away from it?" the attorney, Chris Cole, said.

"Being in the health-and-fitness field, knowing antioxidants play a good role in your daily life style and whatnot, I figured they would be beneficial in, you know, negating some of the negative things about alcohol," the client said. They weren't; she didn't like the flavor, either.

Cole asked how she'd expected to notice the effects of the antioxidants. "You mean that there's no immediate obvious feeling you get after consuming Vitamin C?" he asked. No, she said. That cosmic detail notwithstanding, the case proved successful—the seltzer was made with citric acid, which is low in

"No, it's not your fault. I've secretly always known there was the possibility of a hat."

• •

Vitamin C—and it resulted in a $9.5-million settlement. Vizzy no longer makes claims about antioxidants.

Most Sheehan cases assert that a buyer would have forgone purchasing a product, or expected to pay less, if it had been marketed accurately. In May, I watched him prepare a named plaintiff, Stacey Castle, for a deposition about Kroger's Private Selection brand of smoked Gouda. Castle, on a Zoom call from Wisconsin, had her hair in a loose bun, and her iPad camera was angled up from below her chin. When she bought the cheese, she'd understood it to be a justifiable splurge, because the Gouda was actually smoked. When she realized it was not, she was sitting in her dining room. "I'm reading the back label, 'cause I had the cheese sitting on the table," she said. "My exact thought was, You have to be shitting me." She looked fired up.

"Were you injured?" Sheehan asked, playing opposing counsel.

"My pocketbook was!" she said.

The 1933 World's Fair, in Chicago, featured an exhibit known as the American Chamber of Horrors—a kind of food-and-drug freak show of products that were up to no good. Strawberry Bred-Spred was a jar of what appeared to be strawberry jam but was actually pectin, red food coloring, and hayseeds. Noodles packaged in yellow cellophane, to resemble egg noodles, were displayed alongside noodles in honest, untinted wrapping. A bottle of vanilla extract, an expensive commodity, had deviously thickened glass, creating an illusion of abundance. The Great Depression had strained food sources to the limit, and producers, like many Americans, were desperate to stay afloat. But the F.D.A., which had emerged after the passage of the 1906 Pure Food and Drugs Act, didn't yet have the authority to recall products such as Bred-Spred—or even some lethal drugs. So it created the Chamber of Horrors, which travelled the country to raise awareness.

It takes a seismic jolt in mass consciousness to regulate American commerce. One jolt arrived in 1905, when Upton Sinclair's "The Jungle" revealed the terrors of the meatpacking industry, and suggested that a reader's sausage might be flecked with rat feces or sawdust. (The book had helped marshal support for the Pure Food and Drugs Act.) Another came in 1937, when more than a hundred people died after taking Elixir Sulfanilamide, an antibiotic that hadn't been tested for safety. The response was the 1938 Federal Food, Drug, and Cosmetic Act, a sweeping and robust set of laws, and the basis of U.S. food regulations ever since.

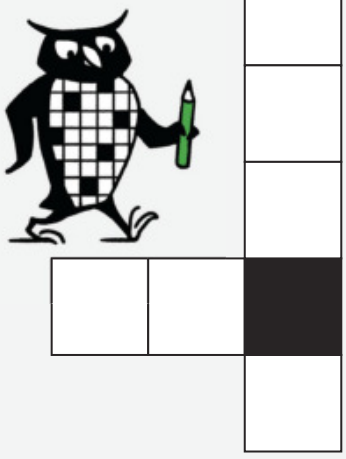
The government has often been gung ho in its health-education efforts: the U.S.D.A.'s nutritional guides and food pyramids, seventies Saturday-morning-cartoon P.S.A.s, Michelle Obama's Let's Move! campaign. But the arc of progress has been long. Nutrition labels weren't required until 1990, per-cent-juice labelling wasn't widely introduced until 1994, and trans-fat labelling began in 2006. "Other countries have figured it out," Michael Pollan told me: front-of-package junk-food warnings in South America, Asia, and Europe; a red-yellow-green stoplight system in the U.K. It can take something like the F.D.A.'s fast-food-disclosure regulation of 2016, in which McDonald's customers were forced to contend with the calorie count of their Big Macs, to remind us that the nature of what we're eating could be conveyed in a startlingly clearer way.

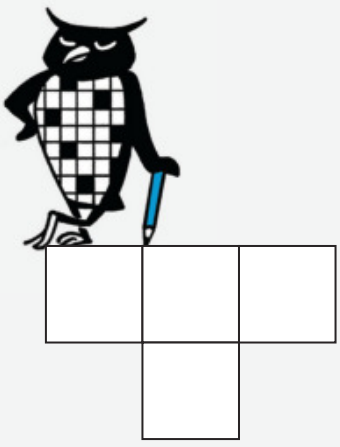
In the absence of such clarity, some of Sheehan's cases can make him seem like the boy observing that the emperor is naked. Consider his whole-wheat-flour cases, which point directly to nutrition. "Whole wheat," Sheehan explained, means "whole grain," which includes the three parts of the wheat grain: the fibre-dense bran, the nutrient-rich germ, and the starchy endosperm. It's widely acknowledged to be better for you than white flour, which contains only the endosperm, but all wheat-flour products, including white, can legally be called "wheat," and are often dressed up to seem healthier than they are. Sheehan walked me through the tricks: adding caramel color; adding oats to the outside of bread; giving bread a heartier, richer, or mottled appearance. Companies "use vague terms like 'multigrain' or 'honey oat' or 'honey wheat,' with an image of a stalk of wheat," Sheehan said. He looked philosophical. "Some might say, you know, 'Big Food has a conspiracy to make us all fat and lazy.' I don't know if that's the case, but I think they might say people don't like the taste of whole wheat as much."

I asked Gersen, of Harvard, about how to regulate ambiguous labelling. "It's actually a much harder problem than I originally thought," he said. "Like, there's a really strong incentive to over-claim and deceive. Even if you say a reasonable consumer wouldn't be tricked, it's almost certainly the case that *somebody* would. That's why the company is doing it. And across a lot of food products,

"Unfortunately, your Twitter has been hacked. Fortunately, it has been hacked by someone much cooler and funnier than you."

THE NEW YORKER
CROSSWORD





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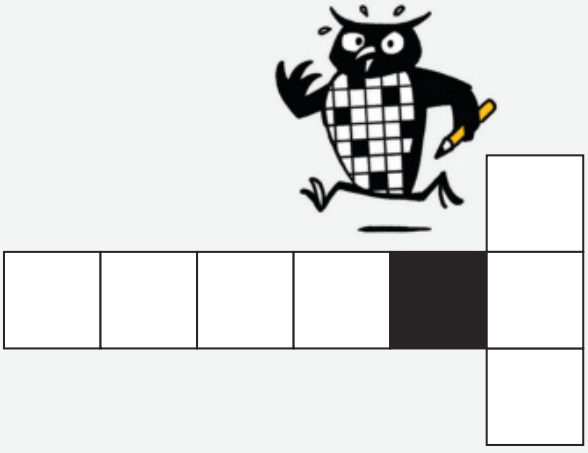
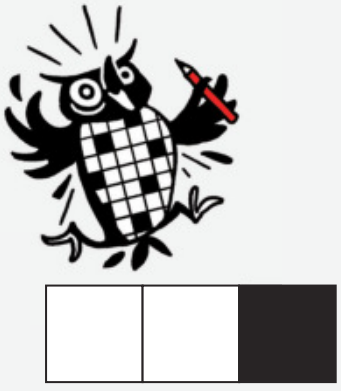




Scan to play.

across a lot of brands, across a lot of the population, that's actually not a trivial number of people." In Sheehan's Country Crock complaint, he observes that consumer-research organizations—namely Mintel, one of the largest in the world—advise companies on how to respond to shifting demands, including by lending margarines and spreads a healthier, more "natural" profile. When I talked to some Mintel employees, they seemed to agree with Sheehan's characterization, without taking credit for it. "The one thing I find funny is this revolutionary new product that's been talked about the last couple of years: plant butter!" Lynn Dornblaser, a product-trend analyst since 1986, said. She laughed. "I think that's margarine. But that has revitalized some brands—becoming 'plant butter,' or talking about being 'plant-based,' because plant-based is the hot, cool thing."

Defendants usually try to have Sheehan's cases dismissed, "which I always find to be somewhat offensive," Sheehan said. "It often feels like they're trying to gaslight you." He read Horvath's response to the Country Crock complaint. "What chutzpah! He says, 'Has no basis to allege'? I mean, no basis? That's a little crazy." Sheehan was bullish on the case's prospects, citing a precedent involving "whole-grain" Cheez-Its; and, indeed, the Country Crock judge had scoffed at the defendant's claim that "Made with Olive Oil" was merely meant to convey "a flavor note." "It's fallen to lawyers like this to offer any kind of accountability," Pollan told me. "I don't think it's the ideal way to do it. But it's the way the government has left us to do it."

Around the time that Sheehan was marvelling at Country Crock's response, Democrats in Congress introduced the Food Labeling Modernization Act, a bill that would dramatically change regulations for food labels. "We've all struggled at times to navigate today's opaque food labels and 'healthy' marketing claims during trips to the grocery store," Representative Frank Pallone, Jr., of New Jersey, said. The legislation, he continued, would make it easier for consumers to determine "the right food choices for their families." The bill's co-sponsor, Senator Richard Blumenthal, of Connecticut, said that the legislation would reform "antiquated" rules and include "front of package labels, clearly marked allergens, and clarified guidelines to deter misleading claims." If enacted, the bill could be a boon for consumers and disrupt the processed-food industry. For that reason and others, it has little chance of becoming law.

A couple of weeks after Sheehan proudly and honestly told me that he'd never been sanctioned by a court for filing something frivolous, a court threatened him with sanctions for filing something frivolous. Judge Steven Seeger of the Northern District of Illinois, after dismissing a complaint of Sheehan's about the lack of lemon in Polar lemon seltzer ("The complaint fizzles, and has no juice," Seeger wrote, in an opinion densely fortified with food zingers), issued an order requiring Sheehan to provide the court with a list of all his firm's class-action filings since 2020, accompanied by explanations of their results.

In recent months, judges and defendants have begun to challenge Sheehan's suits more broadly. Illinois is home to Mondelēz International, one of the world's biggest producers of snack foods, which encompasses brands from Oreo and Chips Ahoy! to Ritz, Triscuits, Cadbury, Sour Patch Kids, and Tang—and, until 2022, Trident, Dentyne, Bubblicious, and other gum brands. Sheehan had sued several of them, including Trident, a case that Judge Iain D. Johnston, also of the Illinois Northern District, had dismissed in February. ("When gum gets stuck somewhere it does not belong, conventional wisdom provides a host of remedies: ice cubes, peanut butter, vinegar, or olive oil," Johnston wrote. "When a federal case gets stuck somewhere it does not belong, the Federal Rules of Civil Procedure provide a different, cleaner remedy.") That month, Mondelēz, in response to the dismissal of the Trident-gum case, requested sanctions against Sheehan, including payment of its attorneys' fees. Its request described him as a prolific filer of "copy-and-paste" complaints; in May, Judge Johnston chose to remind Sheehan that "spaghetti is best eaten, not thrown at walls," and requested a copy of the document that Judge Seeger had demanded.

That document, which Sheehan attached as a thirteen-page spreadsheet in his response, "provides extraordinary insight into the track record of most prolific consumer class action attorney in the United States," the lawyer Chris Cole wrote on his firm's blog. Cole has defended clients against Sheehan's suits, including in the Vizzy Hard Seltzer case. "By my rough count, between January 1, 2020 and April 7, 2023, Mr. Sheehan filed 553 complaints," he wrote. "Of those, 120 (21.6%) were dismissed outright and 35 (6.3%) survived a motion to dismiss at least in part. The remaining 398 (roughly 72%) were either settled or are still pending." Cole estimated, conservatively, that since 2020 defense costs for Sheehan's cases could have amounted to forty-two million dollars.

Several reports stressing the frivolity of Sheehan's suits, and cases like them, have been generated by firms that represent food-and-beverage companies. The New York Civil Justice Institute, which describes itself as nonprofit and nonpartisan, published a paper in 2021 called "Class Action Chaos," by Cary Silverman, a partner at the firm Shook, Hardy & Bacon, which represents food-and-beverage companies. "Class Action Chaos," which says that the suits are "making a mockery of the state's civil-justice system," has been cited in national-news stories about Sheehan; other lawyers I talked to in the food-law realm, including on the defendants' side, disputed that characterization. They saw Sheehan's suits as a product of the failures of the tort system, or as a necessary corrective in an era of gray-area regulation. Several skeptics admitted to me that some of his suits have "some there there." "Spencer won't reject a case just because it has merit," one said, chuckling.

Though judicial scolding for Sheehan has increased, sanctions, so far, have not. And this summer, Judge Seeger, of the copious zingers and admonishments, directed his ire not toward Sheehan but toward his opponent, B&G Foods, in a case concerning Crisco's No-Stick Butter Cooking Spray. In August, as we finished eating at the pizza parlor, I asked Sheehan whether judges' warnings would affect his behavior in the future. "No!" he said. "Why should it? The only thing it affects is that I have to take time to respond to those demands, rather than doing work." He pointed at my plate. "Do you want another slice?" ♦

CLIMATE-CHANGE MYTHS

BY JAY KATSIR

Myth: There is nothing you can personally do to stop climate change.
Fact: There is something you can personally do, but you didn't do it.

Myth: Our children will wander tornado-swept wastes strewn with the shards of a great civilization.
Fact: Typhoon-swept wastes will be more common.

Myth: Earth's climate has changed naturally in the past, so modern climate change must also be a natural process.
Fact: Modern climate change is caused by human activity. For evidence, look at all that footage of smokestacks spewing methane, which then cuts to a time-lapse of a big traffic jam and over to a lush tree in a field rapidly desiccating as a lonesome elk walks by, and then a polar bear tumbles off a melting ice floe and is surrounded by plastic piranhas from a kids' game that ended up in a landfill, and the child who owned it is sitting bereft in a sandbox, and the angle widens to show that the sand is actually a desert where an old-growth forest once stood, and we zoom in on a determined ant struggling across sun-baked rocks, and what's he carrying? A scrap of paper that says "Al Gore."

Myth: It's a beautiful day today.
Fact: We're all gonna die.

Myth: Between heat waves, hurricanes, fires, and floods, every summer will be a deadly reminder of our failed stewardship and darkening future.
Fact: Maybe so, but you can still relax and groove to the Song of the Summer, "(muffled screams)."

Myth: The younger generation will prioritize taking the action necessary to avert climate catastrophe.
Fact: The younger generation's only priority is getting a bottle of Strawberry Watermelon Prime.

Myth: Wildfire smoke contains natural compounds found in evergreen roots which, when inhaled, can improve the body's oxygen absorption.
Fact: What? Where did you hear that?
Myth: Online. Maybe Instagram Reels?
Fact: There's no way that's true.
Myth: Yeah, it didn't sound right. Let me see if I can find it again. Hmm . . . no. But look—awww, it's the Macaw Dad who has six parrot babies that snuggle in his bed.
Fact: I love that guy. But can parrots really be comfortable sleeping like that?
Myth: Sure. Look how cuddly they are.

Myth: As the amount of CO_2 in the atmosphere increases, temperatures rise at an even rate across the planet.
Fact: Temperatures rise at different rates in different places. Land has warmed at about twice the rate of the ocean surface, Arctic temperatures are climbing faster than those in equatorial regions, and Ryan Gosling has never been hotter.

Myth: What about carbon capture?
Fact: You mean carbonara. It's delicious.

Myth: Persephone, daughter of Zeus and Demeter, was gathering flowers when Hades burst from the underworld in his black chariot and abducted her. Demeter, distraught, forbade the trees to bear fruit. Zeus commanded Hades to release Persephone, and he obeyed, but only after tricking her into eating pomegranate seeds, which condemned her to spending half of every year in the underworld. It is Persephone's annual return, and not anthropogenic CO_2 emissions, that causes global warming.
Fact: Global warming is caused by the lewd, un-Christian practices of witches and conjurers.

Myth: Humanity's tragic flaw is that it cannot overcome its narrow provincialism to act collectively and save itself.
Fact: Humanity's only flaw is the weird pinkie toe with the stubby nail.

Myth: Climate change will lead to human extinction.
Fact: A.I. will get us first.

Myth: After decades of resistance, it will soon be simple to transition to an all-electric transportation system.
Fact: No, because each clean-energy breakthrough will be produced by a crypto-fascist billionaire. If you want an emissionless fusion engine, you'll have to buy it from a company owned by a land-mine heir named Gheaf Trince, who purchased the Houston Texans so he could "re-masculate the N.F.L."

Myth: The energy it took to publish this article could have been used to plant a thousand trees.
Fact: C'mon, be cool.

Myth: There is no technological solution that can be implemented in time to reverse the effects of climate change.
Fact: We don't know if this is true, but it can't hurt to fly a bunch of jets to Gstaad to discuss it over Negronis. ♦

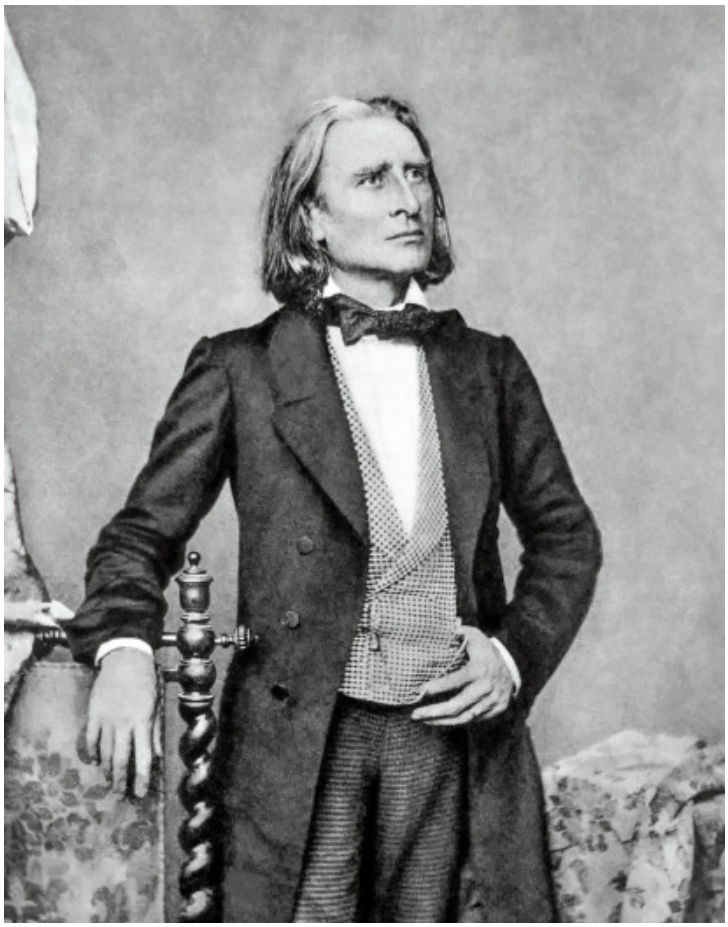
LUCI GUTIÉRREZ

ONWARD AND UPWARD WITH THE ARTS

THE GREATEST SHOWMAN

Liszt defined musical glamour. But pianists now see substance behind the spectacle.

BY ALEX ROSS



Liszt was known for his flowing hair, aquiline nose, and eerily long fingers.

ALAMY

My high-school piano teacher, Denning Barnes, liked to assign me pieces that I had no hope of being able to play. The idea was to experience the music from within, however pitiful the results. One day, he placed in front of me the score of Franz Liszt's Sonata in B Minor—a deceptively thin document of thirty-five pages. By the middle of the second page, I was floundering, but I had already received a constructive shock. Liszt was hailed in his lifetime as the demigod of the piano, the virtuoso idol who occasioned mass fainting spells, and in the hundred and thirty-seven years since his death no one has challenged his preëminence. Yet the Sonata begins with seven bars of technically unchallenging music, which anyone who reads notation can manage. The intellectual challenge is another matter.

You first encounter two clipped G's on the lower end of the piano, spread across two octaves. Liszt indicated that these notes should sound like muffled thumps on the timpani. You then play a slowly descending G-minor scale, doubled at the octave. The second and seventh degrees are lowered a half step, meaning that the scale assumes the contour of the Phrygian mode, which medieval theorists considered mystical in character. (The Hindustani raga known as Bhairavi, which is associated with tranquil devotion, is similar in shape.) Liszt's scale, though, has an unmistakably gloomy aspect, its downward trudge recalling the passage to the dungeon in Beethoven's "Fidelio." We are in an echt-Romantic realm—sombre, religiose, remote, forbidding. "Abandon all hope" could be written above this Phrygian, Stygian staircase. Faust might be brooding in his laboratory; Byron might be dreaming of death and darkness.

The two G's sound again, creating an expectation that the scale will recur in turn. Indeed, we descend once more, but along a markedly different course. What was a staircase of broad, even planks—step, step, half step, step, step, step, half step—becomes an irregular, treacherous structure: down a half step, then a minor third, then two more half steps, then another minor third, and finally a half step and a step. I remember squinting at the page and picking out the notes uncertainly. What *was* this? In the margin, I wrote "Gypsy." Mr. Barnes must have told me that it was the so-called Gypsy scale, a staple of Hungarian *verbunkos* music. If this were played sped up on a cimbalom, it might conjure an old-fashioned Budapest café. But the grave tempo suppresses any hint of folkish character; instead, the dolor only deepens.

When I plowed through the Sonata for the first time, I couldn't get over the strangeness of those juxtaposed scales. It's as if Liszt sketched out two possible beginnings and then included both of them. The music that ensues—thrusting double-octave gestures, of a fencing-with-the-Devil variety—refuses to resolve the ambiguity, although it does at least pilot us toward the home key of the Sonata, of which there was initially no clue. At the very end, after a grandiose journey that telescopes a multi-movement form into a single unbroken span, we return to the descending scales, though they now assume a contour familiar from Eastern European and Middle Eastern music ("Hava Nagila," "Misirlou"). Finally, chords of A minor, F major, and B major shine from

above—deus-ex-machina grace for a divided soul. My renditions of the Sonata tended to skip from the first page to the last.

This was a heady introduction to the lustre of Liszt, who remains at once one of the most outwardly recognizable figures in musical history—the flowing shoulder-length hair, the aquiline nose, the eerily long, flexible fingers—and one of the most enigmatic. Despite his enduring fame, Liszt has never found a secure place in the pantheon of composers. The late musicologist Richard Taruskin, in an essay titled "Liszt and Bad Taste," noted that high-minded connoisseurs have been perennially embarrassed by Liszt's "interpenetration of the artistic and the vulgar worlds"—his seemingly irreconcilable positions as a progressive thinker and as a brash entertainer. The man who reached the brink of atonality in his later scores also concocted the rambunctious Second Hungarian Rhapsody, without which cartoon music could not have existed. His contradictions are subliminally present on the Sonata's opening page: on the one hand, the pan-European inheritance of the ancient Phrygian mode, and, on the other, the Hungarian-folk flavor of the *verbunkos* scale.

As new Liszt recordings and books piled up—about twenty traversals of the Sonata have appeared in the past couple of years, alongside six renditions of the complete Transcendental Études—I decided to grapple with the composer as I never had before. I listened not only to the familiar warhorses but also to the vast remainder of Liszt's output: the clattery technical showpieces, the bombastic ceremonial marches, the freewheeling paraphrases of other composers, the cryptic fragments of old age. (Leslie Howard's hundred-CD survey of the piano music, on the Hyperion label, swamped my desk.) I began to realize, as Taruskin insisted, that Liszt's awesome messiness, his oscillation between the sublime and the suspect, cannot be separated from his historical importance. His roles as performer, composer, thinker, and showman blur together in a phenomenon that overrides the barriers we try to erect among sectors of musical experience. In that sense, Liszt is absolutely modern.

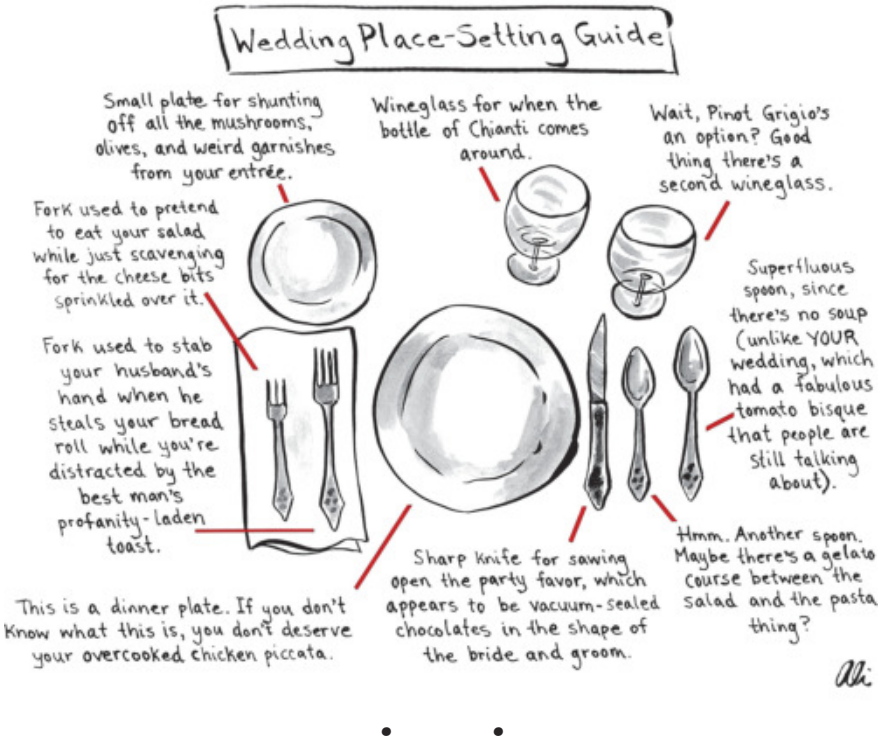
Liszt! Mephisto at the keyboard! The spectacle caused leading writers to become giddy with excitement. Hans Christian Andersen saw in him a "demon nailed fast to the instrument"; Baudelaire perceived a "Bacchant of mysterious and passionate Beauty." Heinrich Heine, who coined the word "Lisztomania," heard a "melodic agony of the world of appearances." George Eliot declared, with uncharacteristic breathlessness, "For the first time in my life I beheld real inspiration." Kings, queens, emperors, and sultans fell silent in wonder. (Tsar Nicholas I made the mistake of chattering away during one recital, causing Liszt to break off in mock deference.) To have not met him was to be unimportant. His glamour persisted well into the Hollywood age, with Dirk Bogarde, Roger Daltrey, and Julian Sands portraying him onscreen.

The vividness of Liszt's imprint belies the vagueness of his identity. He was born in 1811, to German-speaking parents in the town of Raiding, which then lay in the Kingdom of Hungary and now belongs to Austria. Although he came to embrace his Hungarian background, he made little headway in his attempts to learn Magyar. His first major teachers were Italian (Antonio Salieri) and Czech (Carl Czerny). In his teens, he moved with his family to Paris, mastering French to the extent that it became his favored language. In later years, he divided his time among Weimar, Budapest, and Rome, the last a magnet for his passionately held, inconsistently applied Catholic faith. He threw his support behind Russian composers and celebrated the Fourth of July with American pupils. He was, in other words, a cosmopolitan to the roots of his being. An artist, he once wrote, is an exile by nature: "Isn't his homeland somewhere else?"

The definitive account of Liszt's life is the three-volume, seventeen-hundred-page biography by Alan Walker, published between 1983 and 1996. The three parts naturally match up with the principal phases of the Liszt saga: his early career as a touring pianist, at the height of which he played more than a thousand concerts in eight years; his decade-long tenure as Kapellmeister in Weimar, where he became the de-facto chief of the European avant-garde; and, finally, his manifestation as an itinerant musical magus. Having completed four of the seven orders of the priesthood, he assumed the title Abbé Liszt, to the eternal delight of caricaturists.

The image of the virtuoso playboy inevitably remains the dominant one, not least because it established a template for cultural superstardom. The masterstroke of Ken Russell's superbly bonkers 1975 film "Lisztomania" was to feature Daltrey, the lead singer of the Who, as the godfather of all rock gods. The profile fits, and not always in a flattering sense. Liszt could be cavalier about manipulating his audiences, as Dana Gooley shows in his incisive 2004 book, "The Virtuoso Liszt." A very up-to-date system of ticket pricing held sway at Liszt's concerts, with V.I.P.s arrayed in comfortable seats around the piano and ordinary people crowded at the back. His charity events doubled as publicity schemes. Nothing could be more rock-star-like than endorsing piano brands while pounding instruments to the point of collapse onstage. Gooley writes, "Liszt turned the virtuoso concert into a spectacle of cultivated aggression."

In the eighteen-thirties, Liszt had three children with the French historian and novelist Marie d'Agoult, and like many a latter-day celebrity he proved a disaster as a parent. After the affair with d'Agoult came to an acrimonious end, Liszt sent the children to live with his mother, in Paris. Later, he consigned them to an elderly governess, who was draconian even by the standards of the time. Although he bombarded his kids with starchy letters—"I see with pleasure that your handwriting is improving" is a typical line—he neglected to visit them for more than seven years. When he finally found time for a reunion, he arrived in the company of Hector Berlioz and Richard Wagner, the latter bearing the libretto of "Götterdämmerung," from which he proceeded to read aloud. Two of the children, Blandine and Daniel, died in their


Wedding Place-Setting Guide
Small plate for shunting off all the mushrooms, olives, and weird garnishes from your entrée.
Wineglass for when the bottle of Chianti comes around.
Wait, Pinot Grigio's an option? Good thing there's a second wineglass.
Fork used to pretend to eat your salad while just scavenging for the cheese bits sprinkled over it.
Superfluous spoon, since there's no soup (unlike YOUR wedding, which had a fabulous tomato bisque that people are still talking about).
Fork used to stab your husband's hand when he steals your bread roll while you're distracted by the best man's profanity-laden toast.
Hmm. Another spoon. Maybe there's a gelato course between the salad and the pasta thing?
Sharp knife for sawing open the party favor, which appears to be vacuum-sealed chocolates in the shape of the bride and groom.
This is a dinner plate. If you don't know what this is, you don't deserve your overcooked chicken piccata.

• • •

twenties. Cosima Liszt—later Cosima von Bülow, later still Cosima Wagner—lived to the age of ninety-two, an unsurprisingly damaged soul.

Liszt's parental aloofness is all the more disappointing given his general tendency toward generosity and collegiality. Indifferent to wealth, he gave away money as easily as he earned it. In hotels, he let his valet have the suite while he occupied the smaller quarters. Later in life, he never charged for lessons, following Salieri and Czerny's practice. Although he felt wounded by the criticism that his works sometimes received, he could not hold a grudge for long. Berlioz, Wagner, and the Schumanns, Robert and Clara, all cast doubt on his compositional abilities to one degree or another, but they did not lose his support. Brahms once fell ostentatiously asleep while Liszt was playing the Sonata in B Minor; Liszt bore him no apparent ill will. Saint-Saëns, Grieg, Rimsky-Korsakov, and Debussy were among the younger talents who received his encouragement.

That largeness of spirit was of a piece with Liszt's cosmopolitanism, which resisted the national chauvinism endemic to nineteenth-century music. Although he aligned himself with the Wagnerian faction, he retained his love for French grand opera and for Italian bel canto. At the same time that he was fashioning piano transcriptions of Wagner's "Parsifal," he was adapting Verdi's "Simon Boccanegra." (One of the major Liszt revelations of recent years is his unfinished opera "Sardanapalo," which had a belated première in 2018, in a realization by the musicologist David Trippett; its best passages have red-blooded Verdian heft.) Disenchanted with Bismarckian imperialism, Liszt sided with France in the Franco-Prussian War. In an 1871 letter to Princess Carolyne zu Sayn-Wittgenstein, the chief companion of his later years, he wrote, "What a dreadful and heartrending thought it is that eighteen centuries of Christianity, and a few more centuries of philosophy and of moral and intellectual culture, have not delivered Europe from the scourge of war!"

It is not impossible to imagine what Liszt was like: chaotic, mesmerizing personalities populate the artistic sphere in every era. But what did he *sound* like? The extant testimony is of only limited help. Here is the critic Joseph d'Ortigue in 1835:

> His performance is a waterfall, an avalanche that tumbles downward, a torrent of harmony that reproduces in its immeasurable swiftness the thousand reflections and nuances of the rainbow; it is a diaphanous, vaporous form suspended in midair by the sounds of an aeolian harmony, its shimmering clothing made up of flowers, stars, pearls, and diamonds; then come accents of despair articulated in the midst of suffocation; it is a delirious joy; it is a prophetic voice speaking a great lamentation; it is a virile, proud speech that commands, subjugates, terrifies; it is a sigh being poured forth, the last groan of a dying man.

Metaphors from the natural world proliferate in descriptions of Liszt's playing: storms, volcanoes, comets, the Apocalypse itself. Thinking back on my own experience with live performers, I can recall only one who had anything like this impact: the free-jazz pianist and composer Cecil Taylor, who, when I first saw him, in 1989, gave me the feeling not only of being engulfed by sound but of nearly drowning in it.

Before Liszt, touring virtuosos seldom came onstage alone; some combination of singers, chamber groups, orchestras, and actors reciting monologues joined them. Liszt made himself the sole attraction. To one of his admirers, he wrote, "I have dared to give a series of concerts with myself entirely alone, taking off from Louis XIV and saying cavalierly to the public, '*Le Concert, c'est moi.*'" He spoke of "musical soliloquies"; in Britain, they became "recitals." Thus was the modern format of the recital born. To be sure, many of Liszt's habits would now be seen as wildly eccentric. He was second to none in his adoration of Beethoven, yet he routinely embroidered the great man's scores, introducing trills and tremolos into the first movement of the "Moonlight" Sonata. Listeners were left confused about whether they had heard Beethoven, Liszt, or some mixture of the two. Between selections, he would mingle with his aristocratic fans in the audience.

When Liszt was on the rise, in his teens and twenties, the man of the hour was Sigismond Thalberg, an Austrian pianist prized for his ineffable singing line. Jonathan Kregor, in an essay in the recent musicological anthology "Liszt in Context," notes that the new arrival "tried to differentiate himself by becoming a pianist of overwhelming power." In response to Thalberg's exquisite paraphrases of operatic arias,

Liszt evolved a sound that was symphonic in character—heavily resonant yet spectacularly mobile, activating all the registers of the instrument.

Devices that came across as pure wizardry were, in fact, the product of painstaking experimentation in matters of technique. To execute so-called blind octaves, the hands trade off rapid-fire octaves along the chromatic scale. (Alan Walker notes that one trick to playing Liszt is to think of the hands as a single organism with ten digits.) The second and fourth fingers can become a prong that hammers out rapid patterns. In the chromatic glissando, which Liszt picked up from his student Carl Tausig, one right-hand finger sweeps across the white keys while the left hand races just behind, on the black keys. Immense cascades of chords up and down the keyboard convert the entire upper body into a lever. The net result is a kind of tuned rumbling or roaring—contained noise.

In planning such effects, Liszt often looked for inspiration to the unaffectedly diabolical Niccolò Paganini, who transformed the violin into a crying animal. One of Liszt's pianistic breakthroughs is the Paganini-derived "Clochette" Fantasy of 1832—the initial version of the crowd-pleasing "Campanella" Étude. The Fantasy makes extreme demands; in one passage, the score supplies a simplified alternative version, or "ossia," which is said to have been "performed by the author"—Liszt admitting that he had defeated even himself. The most remarkable moment, however, comes in the slow, dreamy opening. Unstable harmonies in the accompaniment generate a slurry, smoky vibe, suggestive of Paganini sawing moodily on his instrument.

Works like the "Clochette" Fantasy, the Rondeau Fantastique (a raucous takeoff on the Spanish zarzuela), and "Réminiscences de Don Juan" (a hallucinatory condensation of Mozart's "Don Giovanni") were once considered the province of showoffs, but they are now taken more seriously, as a form of creative remixing. The Taiwanese pianist Han Chen, a noted interpreter of the Ligeti Études and other modernist repertory, has made a blistering album of the opera transcriptions. Igor Levit, who first drew acclaim for his Bach and Beethoven, has begun playing Liszt's transcriptions of the Beethoven symphonies, seeing them as hybrid cases of composers in dialogue. (Levit is about to release a formidable new recording of the Sonata which emphasizes the single-minded discipline of Liszt's process.) Contemporary scholars address this music on its own terms, casting aside the donnish value system that finds profundity only in autonomous scores of verifiable originality. In a recent essay collection titled "Liszt and Virtuosity," the pianist-scholar Kenneth Hamilton describes Liszt's artistry as a "continuum stretching from performance to original composition via improvisation and transcription." Liszt's paraphrases seem to convey the storm of feeling in his brain as he listens.

In the freestanding compositions, too, we encounter a kind of uncertainty principle; they are multivarious, unfixed, in flux. A mainstay of the Liszt literature is Jim Samson's "Virtuosity and the Musical Work: The Transcendental Studies of Liszt," published in 2003. It surveys the three stages through which this colossal piano cycle evolved: "Étude en Douze Exercices," a modestly flamboyant homage to Czerny, written in 1826, when Liszt was fifteen; the Twelve Grand Études, a titanic and gruesomely difficult expansion of that material, which appeared in 1839; and

"Douze Études d'Exécution Transcendante," a final revision, published in 1852, in which Liszt reined in the complexity while refining the narratives. Ferruccio Busoni, one of Liszt's chief heirs, said of the Études, "First he learned how to fill out and then he learned how to leave out."

What did Liszt mean by "transcendent execution"? The phrase indicates, most simply, an overcoming of conventional technical limitations. But the Romantic context of the music has us thinking of weightier things. Samson, in his searching analysis, sees a symbolic transcendence of human possibility: the Lisztian virtuoso "stood for freedom, for Faustian man, for the individual in search of self-realization—free, isolated, striving, desiring." Liszt's restless sequence of inspirations, revisions, reconsiderations, and recombinations—the "Mazeppa" Étude exists in no fewer than seven versions—is also a kind of overcoming of the work itself. In quantum terms, a finite object gives way to a bundle of energies and possibilities.

Inherent in this music is a challenge to the player—transcend *me*. Liszt is saying, I have tried to capture my ideas on paper, but I cannot capture the transient magic of live performance. Such thoughts may come to mind when you watch a video of the dumbfounding young Korean pianist Yunchan Lim at the 2022 Van Cliburn Competition, inhabiting the Études with a nearly ideal blend of technical precision and emotional panic. (There is also a recording, on the Steinway label.) The notes are flawlessly there, to an almost unprecedented degree, yet Lim is hardly pretending to be a mere executant of Liszt's conception. The Études are too majestically excessive to be treated with such reverence.

Toward the end of "Mazeppa," the pianist must fire off a series of diminished-seventh chords, repeating at high speed a pattern that initially set the piece in motion. They are pinned against a fixed D in the bass, triggering all manner of dissonances. Even if the player nails the chords—tricky to do, given the tendon-endangering spread of the left hand—he gives the impression of an overtaxed soul pummelling the keyboard in a frenzy. Lim accelerates through them like a stunt driver in an action movie who steps on the gas while a bridge collapses beneath him. This is Liszt in the flesh.

Liszt's *Glanzzeit*, his virtuoso glory days, ended in September, 1847, when he was thirty-five. After a recital in what is now Kropyvnytskyi, Ukraine, he decided to stop performing regularly for a paying public. Earlier that

year, he had met Sayn-Wittgenstein, who urged him to shift toward composing full time—a step that he had long contemplated. He and Sayn-Wittgenstein settled in Weimar, where Duke Carl Alexander hoped to revive the cultural golden age of Goethe and Schiller. If Liszt had imagined a period of quiet creative activity, his extroverted nature soon intervened, as he set about making the city a hub for the vanguard. His greatest coup was the world première of Wagner's "Lohengrin," in 1850—a potent vote of confidence in a composer who, the previous year, had fled Germany after engaging in revolutionary activity. Progressives gathered in Weimar, imbibing the music of the future.

At the core of the Weimar agenda was a turn toward program music. Liszt felt that composers should deëmphasize abstract forms—sonata, concerto, symphony—in favor of narratives on pictorial, literary, and philosophical subjects. To that end, he invented the genre of the symphonic poem. His thirteen works of this type draw on such lofty sources as Shakespeare ("Hamlet"), Aeschylus via Herder ("Prometheus"), and Byron ("Tasso"). He also produced two full-scale symphonies, one based on Goethe's "Faust" and the other on Dante's Divine Comedy. As if to demonstrate his mastery of more traditional structures, he wrote the Sonata in B Minor, a self-sufficient tour de force of thematic transformation.

Conservative critics were lying in wait. Eduard Hanslick, the acidulous apostle of Viennese classicism, summed up the aspiration inherent in the symphonic poems: "The fame of the composer Liszt was now to overshadow the fame of the virtuoso Liszt." The results, in Hanslick's estimation, fell woefully short of this goal. Banal ideas were "chaotically mixed together." Superficially shocking novelties revealed a "restlessness that smacked of outright dilettantism." Climaxes veered toward "Janissary noise"—a reference to the percussion-heavy military music of the Ottoman Empire.

Was Hanslick entirely wrong? The ever-cresting enthusiasm for Liszt's piano music has yet to incite a parallel vogue for the symphonic poems. "Ce qu'on entend sur la montagne" ("What one hears on the mountain"), the first and longest of the series, was last heard at Carnegie Hall in 1916; "Hamlet" and "Héröide Funèbre" have apparently never been played there. The problems are clear enough. When Liszt launched his symphonic phase, he had little practice writing for orchestra, and he turned to associates for help. There is a discrepancy between the fluidity of his musical ideas and his boxy, formulaic orchestration. Hanslick was within his rights to bemoan a surfeit of blaring brass and of cymbal crashes. "Orpheus," perhaps the finest of the symphonic poems, stands out for its softly radiant textures and meditative spirit.

When Liszt abandons all restraint, the only choice is to follow him over the brink. Leonard Bernstein and the Boston Symphony showed how it should be done in their matchless recording of the "Faust Symphony." Nothing is sacrificed to the shibboleth of good taste. In the Mephistopheles movement, Bernstein augments the infernal atmosphere by having the strings play sul ponticello—a ghastly slithering of the bow near the bridge. (Liszt gave no such instruction, but strict observance of the score is un-Lisztian.) The trouble is that modern-day orchestras, with their polished professionalism, are unlikely to let themselves go. Thus, in a recent recorded cycle with Gianandrea Noseda and the BBC Philharmonic, the music frequently turns inert.

Even if Liszt fell short in his bid for symphonic grandeur, he did achieve an eventual victory over Hanslick and other opponents of program music. Few orchestral composers today write abstract symphonies and sonatas; they embrace suggestive titles, literary epigraphs, detailed explications. Liszt's determination to apply the breadth of his reading and the richness of his experience helped move the art of composition onto a broader intellectual plane. He articulated that ambition as early as 1832: "Homer, the Bible, Plato, Locke, Byron, Hugo, Lamartine, Chateaubriand, Beethoven, Bach, Hummel, Mozart, Weber are all around me. I study them, meditate on them, devour them with fury."

"I'm starting to miss his begging."

"Franz Liszt: King Lear of Music" is how Alan Walker frames his subject in the final volume of his biography. Past the age of fifty, the supple cynosure of the salons turned into something of a tottering wreck. His

utopian project in Weimar had run up against burgherly discontent; his hoped-for marriage to Sayn-Wittgenstein had been foiled by the machinations of her family. He drank too much, he suffered from various illnesses and from depression, and he had increasingly fraught relations with his only surviving child. In 1857, Cosima had married Hans von Bülow, Liszt's favorite student. Six years later, she switched her allegiance to Wagner, with whom she had three children. Liszt at first condemned the relationship on moral grounds—a hypocritical gesture, given his history—and then came to accept it, mostly out of respect for Wagner. With the inauguration of the Bayreuth Festival, in 1876, Liszt was cast as, in his own words, a "publicity agent" or "poodle" for the Wagner enterprise. When Wagner died, in 1883, Cosima took charge of the festival, assuming quasi-imperial status. At Bayreuth the following year, she walked past her father in a corridor without acknowledging him—a very "Lear"-like scene.

To the outer world, Liszt appeared to have lost his volcanic creative urge. In fact, he had entered his most radical phase. Almost from the beginning, he had resisted the idea that a given work should remain anchored on a home key and follow the usual avenues of modulation. A close study of the music of Franz Schubert, the stealth revolutionary of the early nineteenth century, suggested to Liszt a host of other paths: instead of moving along the circle of fifths (C major to G major, G major to D major, and so on), one could move by thirds, from C to E. Even stranger leaps are possible—for example, the uncanny glide from F major to B major at the end of the Sonata in B Minor. Such explorations also led him to the whole-tone scale—the division of the octave into equal steps. That scale, later seized on by Debussy, runs all through Liszt's output; in the "Dante Symphony" it casts an unearthly light on a setting of the Magnificat, and in his oratorio "Christus" it evokes a storm that Christ dispels.

Liszt felt a particular freedom in the religious arena, where the task of representing the divine and the apocalyptic justified extreme measures. Hostile critics saw the austere apparition of Abbé Liszt as another performance, but his piety was sincere, and it went hand in hand with an immersion in Gregorian chant and Renaissance polyphony. His earliest sacred compositions, dating from the eighteen-forties, are stark and unadorned, rejecting the opulence of much religious music of the period. "Pater Noster I," a setting of the Lord's Prayer which exists in piano and choral versions, has an almost medieval simplicity. At the same time, its harmonies are jarring. The piece begins in C, veers through B-flat, E-flat, A-flat, and D-flat chords, and lands on E major at "Fiat" ("Thy will be done").

By the end of his career, Liszt felt free to put almost any combination of notes on paper. In "Ossa Arida" ("O ye dry bones, there the word of the Lord"), from 1879, the organ blasts out a chord made up of all the notes of the C-major scale—a luminous dissonance that seems not the denial of tonality but the transfiguration of it. In "Via Crucis" ("The Way of the Cross"), Liszt adopts a hieratic manner that anticipates by many decades the avant-garde devotions of Olivier Messiaen. A string of works in a secular mode enter similarly far-out terrain. "R. W.—Venezia," a memorial to Wagner, offers a forbidding procession of augmented triads—three-note chords with no clear tonal orientation. Little of this music was known in Liszt's lifetime; much of it was rejected by publishers. Wagner, shortly before his death, told Cosima that her father had gone insane.

In the early twentieth century, a growing awareness of Liszt's late period prompted a reconsideration of his historical position. He found a posthumous role as a prophet of impressionism and atonality. Béla Bartók declared in 1936, "The compositions of Liszt exerted a greater fertilizing effect on the next generation than those of Wagner." This was a dramatic reputational shift for a composer who had so often been dismissed as a purveyor of dazzling trash. In truth, as Taruskin pointed out, the veneration of Liszt's proto-modernism left intact the familiar biases against "mere virtuosity." The elderly sage was cast as a doleful penitent, making up for youthful indiscretions. Dolores Pesce, in her 2014 study, "Liszt's Final Period," complicates that picture, emphasizing that the late music traverses many different styles. Amid the arcana, Liszt was still writing Hungarian rhapsodies, not to mention arrangements of polkas by Smetana and other salon-ready fare. No single-minded teleology will suffice for Liszt.

The old man harbored hopes that posterity would understand him better, but for the most part he resigned himself to his status as a fading star, acclaimed more for his "lovable personality," as he wryly put it, than for his achievements. In 1885, a year before his death, he wrote to Sayn-Wittgenstein:

> I waste my time more or less voluntarily. Given the weakening of age, work becomes more difficult for me; nevertheless, I continue laboriously to fill music paper, and some people flatter me that my last compositions are not worse than the preceding ones. My estimation of both does not go beyond the most rigorous modesty. Without counting the great masters such as Palestrina, Lassus, Bach, Mozart, Beethoven, I consider myself very inferior to their successors Weber, Meyerbeer, Schubert, Chopin, etc., and bow profoundly before the immense genius of the double eagle Wagner.

This might read as false humility, but similar passages appear throughout his letters. Liszt can be accused of many sins; oblivious arrogance is not one of them.

His death was itself a kind of self-abnegation. In 1886, with his health failing, he prolonged a period of ill-advised travel by attending that summer's Bayreuth Festival. He thus found himself dying at the Wagner shrine, his half-estranged daughter watching over him with ambivalent eyes. "If only I had fallen sick somewhere else," Liszt was heard to say. He lies in the Bayreuth city cemetery, under the legend "I know that my Redeemer lives." ♦

A REPORTER AT LARGE

DANGEROUS DESIGNS

Gene editing gives us transformative powers. But should we use them?

BY DANA GOODYEAR

He Jiankui, a young Chinese scientist known to his American colleagues as JK, dreamed of remaking humanity by exploiting the emergent technology of gene editing. He had academic polish, and an aptitude for securing institutional support. As a student, he had left China for the United States, where he did graduate work in physics at Rice and a postdoc in a bioengineering lab at Stanford. At the age of twenty-eight, he was recruited into a prestigious Chinese government program for foreign-educated talent, and was offered a founding position in the biology department of the Southern University of Science and Technology.

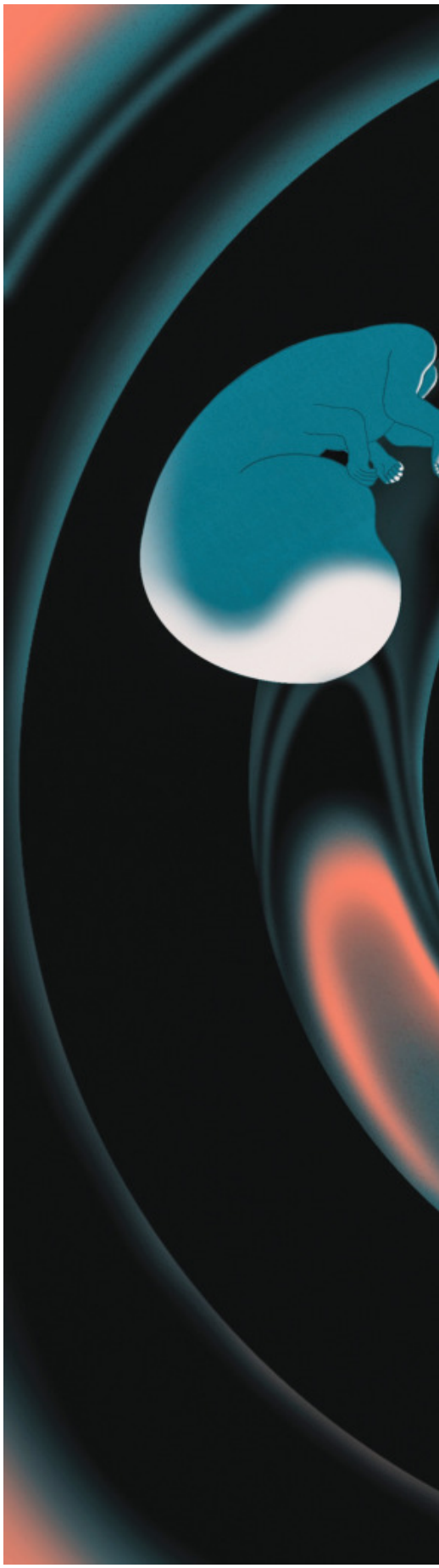
SUSTech was a newly created research institute in Shenzhen, a city in the midst of a biotech boom. JK, who arrived in 2012, likened Shenzhen's startup culture to that of Silicon Valley—bold creativity was encouraged, and there was plenty of capital on hand. With colleagues from his lab, he often held brainstorming sessions at a café near campus, delineating his plans. In the first ten years, he would tackle a variety of genetic diseases; in the ten years after that, he'd extend the human life span to a hundred and twenty years. In a PowerPoint that he presented at the café, he wrote, "As a result of promoting genome editing, humanity is smarter, stronger, and healthier. Humanity enters an age of controlling destiny."

JK's agenda was spectacularly ambitious, and the pace he projected was aggressive—lifetimes of work in mere decades. To start, he would focus on what he believed was an achievable task: eradicating a disease governed by a single gene. He selected AIDS, an illness regarded in China as both pernicious and shameful but one for which there might be an elegant fix. H.I.V. enters human cells by way of a receptor created by a gene called CCR5. JK planned to use the gene-editing tool CRISPR to disrupt CCR5 in human embryos, which would, in theory, render the babies impervious to infection.

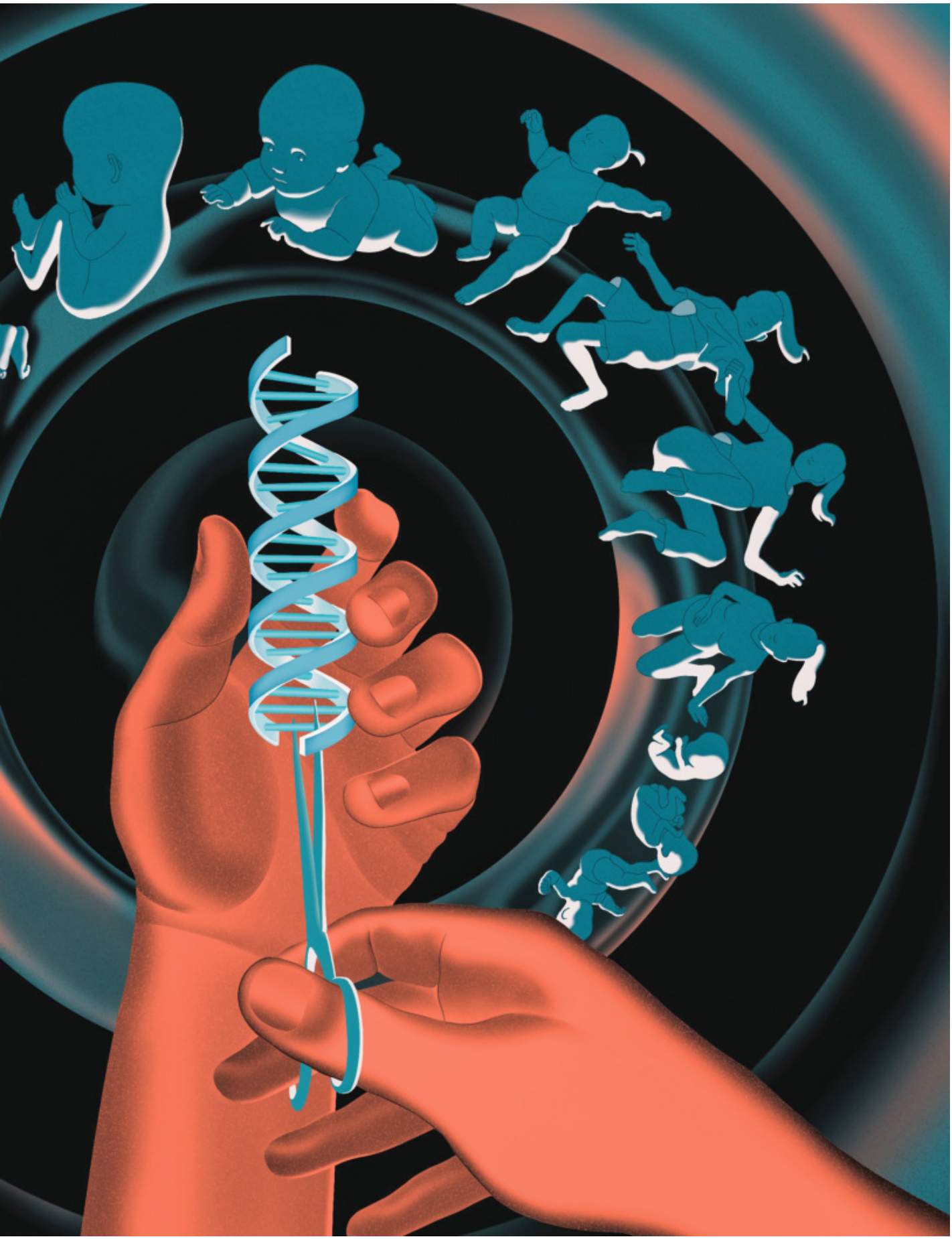
The experiment required volunteers, and, through a chat group associated with an H.I.V./AIDS charity, he began recruiting couples: H.I.V.-positive men married to uninfected women. Chinese law denies in-vitro fertilization and adoption to H.I.V.-positive people, and natural conception carries a risk of transmission. For couples with an infected partner, JK's program was a chance at parenthood. It promised confidentiality, which was critical for a marginalized community; an H.I.V. diagnosis in China can cost a person his job. The treatments would take place discreetly, at facilities where only key employees were aware of the experiment.

JK's "vaccine," as he described it, was intended to break a cycle of stigma, encoding protection that would be passed down through generations. Not only would the babies be immune to H.I.V.; their children would be, too. One volunteer wrote that, when he got a letter accepting him into the program, "I smiled and I shed a great many tears. The country loved us after all and hadn't given up on us."

Editing human embryos for reproduction is taboo in the world of genetic engineering; the possibility is too great that a scientist will accidentally introduce mutations that harm the subject and affect future generations. JK knew that he would need to manage his experiment's unveiling carefully. But in November, 2018, Antonio Regalado, an investigative journalist at *MIT Technology Review,* discovered data that JK's lab had uploaded to a Chinese registry for clinical trials. Believing that the data might indicate the existence of an edited human fetus, Regalado sent it to Fyodor Urnov, an expert on gene editing, for verification. "I did not want



The Chinese researcher He Jiankui was jailed



for creating customized babies. Some observers argue that the real problem wasn't him—it was the lure of the technology.

ILLUSTRATION BY JUN CEN

to open that file," Urnov told me. "I'm, like, 'Please, please, please, no. Nobody's that crazy.'" He shuddered, remembering the moment that his fear was confirmed. "I'm, like, Life will never be the same again."

A few days later, as scientists from around the world prepared for a gene-editing conference in Hong Kong, JK released a series of YouTube videos, announcing the birth of a set of twins, edited as embryos with CRISPR. A slim, nervous-seeming man in a pale-blue shirt, he looked earnestly into the camera and said, "Two beautiful little Chinese girls named Lulu and Nana came crying into the world, as healthy as any other babies." He went on to explain how, when each was only a single cell, he had used CRISPR to delete CCR5. "I understand my work will be controversial," he said. "But I believe families need this technology, and I'm willing to take the criticism for them."

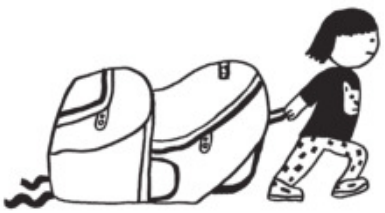
China's state-run media celebrated the news, but the scientific community reacted with dismay. A group of Chinese researchers condemned the study as madness. David Baltimore, a Nobel Prize-winning biologist who chaired the Hong Kong event, called it "irresponsible," saying, "I think there has been a failure of self-regulation by the scientific community." At the conference, JK had been scheduled to present preclinical data, involving mice, monkeys, and nonviable human embryos. Instead, the organizers insisted that he speak about the edited children.

After a few awkward moments, JK walked across the stage and stood before a lectern. "First, I must apologize that these results leaked unexpectedly," he said, his forehead glazed with perspiration. He thanked his university, but maintained that it knew nothing of his endeavors. In a tense exchange that followed, he fielded questions from colleagues. Were there any unintended consequences of the edits? How many embryos had been modified? How many implanted? How many born? There were three edited babies, he acknowledged: along with Lulu and Nana, another was on the way.

As JK took questions, he looked like a schoolboy startled to be reprimanded when he'd been expecting praise. Alta Charo, a professor of law and bioethics who met him in Hong Kong, was struck by his combination of grandiosity and naïveté. "He seemed to truly believe in what he was doing," she told me. "I figured he has to be deluding himself—not just others but himself—to be able to have such a sincere belief in something that logically made no sense."

The Chinese government swiftly withdrew its enthusiasm for JK's research, and, soon after he returned to the mainland, his lab was locked and he was placed under house arrest. In 2019, he was sentenced to three years in prison for "illegal medical practices," and fined nearly half a million dollars. Two of his collaborators were given lesser sentences and fined. Among scientists, there was a pervasive sense of embarrassment. JK had misused a powerful technology and gambled with the health of children—experimental subjects he himself had created—without, in the scientists' view, a compelling medical reason to compensate for the risk. Urnov told me, "He has taken a jar of tar, poured it over the field of CRISPR, and left an indelible stain. We will never wash that stain off. I am prepared to say that he's not a fellow-scientist. He's persona non grata."

JK was released from prison in the spring of 2022, and quickly resumed his efforts at gene editing. When I spoke to him by Zoom this past January, he was in Shenzhen, with his wife and two young daughters, celebrating a spring



festival. The family, he said, was moving to Beijing, where he was opening a new laboratory. He was posting regularly on Twitter, interspersing job listings for lab positions with blue-sky images of him teeing off on the golf course.

JK is thirty-nine, and wore a blue oxford shirt and a tweed blazer. He said that his new lab would be a nonprofit providing affordable gene therapy for rare conditions, and that he would focus first on Duchenne muscular dystrophy, a fatal disease that causes irreversible muscle damage, primarily in boys. This time, his patients would be not embryos but young children desperate for a cure. I asked if it was an attempt to redeem himself in the scientific community. "I don't know if I'd use the word 'redeem,'" he said. "I want to do it to help people today."

He refused to discuss his embryo-editing experiment in any detail. Rocking back and forth as he spoke, he periodically broke out in uncomfortable laughter. "Hmm! I don't know," he said, smiling, when he was dodging a question. I asked if Lulu, Nana, and the third baby, Amy, knew that they had been edited. He looked at the ceiling and smiled. "I'm not going to answer this," he finally replied. But he did want to dispel a rumor that had been circulating online. "The twins were not killed or sterilized," he said. "They are living happily with their parents."

As for the debacle that his experiment had caused, JK would admit to no greater error than bad timing. "I do acknowledge that I have done it too quickly," he said. In one of his YouTube videos, he predicted that in twenty or thirty years gene-edited babies will no longer be controversial, or even remarkable. He likened himself to the pioneering founder of the field of I.V.F., Robert Edwards, whose career had followed a heroic arc. In 1978, when the first I.V.F. baby was born, Edwards was a figure of scandal and opprobrium. In 2010, he was awarded the Nobel Prize.

CRISPR, which may be the single most transformative biological technology of the twenty-first century, is a natural phenomenon, evolved over billions of years. It was first observed in the nineteen-eighties, when researchers noticed unexplained sequences of viral DNA in E. coli. Eventually, they realized that these sequences played a role in the bacteria's immune system: they could find and destroy other pieces of viral DNA. Isolated and distributed in tiny vials to laboratories around the world, CRISPR would become the primary tool of genetic engineering. A couple of drops, introduced by pipette to a cell, could reliably cut the double strand of DNA, changing the function of its genes. Research that once consumed

years of a scientist's career could now be completed in a few weeks.

The CRISPR system is often likened to a pair of scissors. In 2012, Jennifer Doudna and Emmanuelle Charpentier found a hand to direct those scissors: a guide-RNA protein that could target specific genes. It was a monumental discovery, and in 2020 they won the Nobel Prize.

Doudna and Charpentier's method was highly replicable and relatively inexpensive. You can buy a vial of CRISPR and a guide RNA on the Internet for a few hundred dollars. Gene-editing research has accelerated rapidly, along with efforts to commercialize the technology. Doudna, a professor at Berkeley, founded the Innovative Genomics Institute to study practical applications of CRISPR, and five companies to exploit the discoveries.

CRISPR promised to transform medicine, providing a way to cure a patient of genetic disease by editing the DNA of the affected tissues. That form of editing is known as "somatic"; the changes it introduces are limited to the individual patient. Editing an embryo, by contrast, changes the DNA of the embryo's future eggs or sperm—its "germline"—causing modifications that will pass down to subsequent generations. As CRISPR became available, a broad consensus emerged among scientists that they should, at least for the time being, resist the temptation to make heritable changes to the human genome. CRISPR was too new and too poorly understood. "You never know what you will introduce," Charpentier told me. "Is it the realization of a nightmare?"

The precarity recalled an earlier moment in bioscience: the advent of gene splicing, which allows DNA from disparate species to be combined. In 1975, amid fears of superpathogens and laboratory leaks, scientists gathered at a conference center at Asilomar State Beach, in California, to discuss the hazards and the potential. Their work resulted in guidelines adopted by the National Institutes of Health. According to Hank Greely, who directs the Center for Law and the Biosciences at Stanford, it also had a dampening effect on further regulation, by discouraging Congress from imposing more restrictive laws.

Like Charpentier, Doudna recognized the danger posed by the new technology. In 2014, she read a paper by a group in China that had used CRISPR to modify monkey embryos and then successfully implanted them in a mother, creating "mutant" offspring with altered DNA. Monkeys, the researchers noted, "have served as one of the most valuable models for modeling human diseases." To Doudna, this was a clear indication that human germline editing was next. "It made me feel like I needed to really get out in public about it and speak about the importance of responsible use of the technology," she said.

Several months later, Doudna convened a group of scientists and ethicists in Napa. The event deliberately evoked the debates of the nineteen-seventies; two of the participants, David Baltimore and Paul Berg, had helped organize Asilomar. At the time, rumors were circulating about another Chinese study, this one using CRISPR to edit human embryos. The researchers, who soon published their work, had designed the experiment carefully, balancing on the threshold of societal acceptance; they worked with nonviable embryos and did not transfer them into a uterus. "They were covering their butts," Greely, the Stanford professor, said. "When they were criticized, they could say, 'We didn't implant, and it wouldn't even have worked if we did.'"

After Napa, Doudna and her colleagues outlined what they called "a prudent path" for genetic engineering. While there might eventually be circumstances in which heritable editing was acceptable, they wrote, CRISPR wasn't yet ready. One major concern is that the CRISPR scissors don't behave predictably: like the brooms in "The Sorcerer's Apprentice," they sometimes cut the targeted gene and then keep on cutting, leading to "off target" mutations. Even the "on target" edits can have negative consequences; disabling a gene can solve one health problem while creating another. (For instance,

"I'll be right up. I just need to finish Googling the age differences between me and celebrities."

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there's a gene that has spread widely by natural selection through Africa, India, and Latin America because it protects against malaria. But the same gene, if both parents carry it, can cause sickle-cell disease, an excruciatingly painful blood disorder.) A further complication is that, as embryonic cells divide and multiply, and the CRISPR scissors keep snipping, they often fail to edit every cell. The growing embryo becomes a "mosaic" of edited and unedited DNA.

Doudna and her cohort weren't the only ones who were concerned. In a 2015 position paper bluntly titled "Don't Edit the Human Germline," another group of scientists argued that the controversy over editing human embryos would imperil the prospects of somatic editing, which could save the lives of millions of people who were already alive and suffering.

It would be easy, they added, for heritable editing to be used to create "non-therapeutic modifications." Fyodor Urnov, who was among the authors, said, "I'll give you three use-case scenarios right now which we should be very afraid about. Fear number one: the weaponization of the military. We know how to make a human being who runs on four hours of sleep—I can tell you what mutation to make. Two: We know what gene to edit to reduce pain sensation. If I were a rogue nation wishing to engineer a next generation of quasi-pain-free special-forces soldiers, I know exactly what to do. It's all published. And three: physical strength. You don't need a large lab operation. You just need the ill will."

In the United States, editing human embryos for reproduction is forbidden, and virtually all human-embryo research is ineligible for federal grants. Some seventy other countries limit heritable genome editing; there are explicit prohibitions in Canada, Brazil, Israel, South Korea, Japan, and Australia. But there is nothing approaching an international edict against the practice. In many jurisdictions, there are either no laws or no mechanisms to enforce them, and "jurisdiction shopping" is a pervasive problem.

Even in some places that have banned heritable genome editing, the consensus in the scientific community may be unstable. In 2017, the U.S. National Academies of Sciences, Engineering, and Medicine issued a report stating, "Heritable genome-editing trials must be approached with caution, but caution does not mean they must be prohibited." Among other recommendations, the report proposed that any future trials be limited to preventing serious diseases, targeting genes well understood to cause those diseases, and converting those genes to versions that already exist in the human population. As JK began to implement his plans, he convinced himself that CCR5 met these criteria.

He Jiankui was born at home in 1984, into a farming family in Hunan Province. An outstanding student with an acute memory, he attended the University of Science and Technology of China, which is known as China's Caltech. He majored in physics, and won a scholarship to continue his studies abroad. At Rice, he earned a Ph.D. in three years. In 2010, he entered a postdoctoral program at Stanford.

At Stanford, JK worked under Stephen Quake, a professor of bioengineering and applied physics who was also an inventor and entrepreneur, known for creating a blood test that radically simplified the detection of Down syndrome in fetuses. Quake is an imposing, broad-shouldered man, a heli-skiing enthusiast who has founded at least ten companies with a total value once estimated at $1.5 billion. His approach is multidisciplinary, stretching from fluid dynamics to immunology. "I blunder into other people's domains without much courtesy," he has said. An investor in several of his enterprises told a reporter, "Steve is out to hunt death down and punch him in the face."

For decades, Stanford has encouraged its researchers to innovate, and to commercialize their discoveries. "That's the spirit of Stanford," JK told me. "You have an invention in the lab, then you have the duty to transfer the lab invention to a product that is given to people." Quake epitomized that ethos, and JK worked hard to emulate him. He told me that, early in his time at Stanford, he approached Quake for

END OF SUMMER IN THE FOOTHILLS

1.
The child is playing "charades."

She mimes a child hatching an idea—
pacing the yard, eyes widening—

she imitates an actor acting,
mincing, parrying a blow,
embracing the air, wriggling out of it—

I know the answer, "charades,"
but I won't say it: let her win,
let the "secret" be a secret.

She turns her brother's Sox cap,
a Bazooka wrapper, a twig into props,

but the meaning is just "evening,"
"Mount Tabor," "make believe."

2.
The child is flinging herself
from a porch step, a knoll,
a boulder, a cedar branch,

but only when I least expect it—
I have to catch and whirl her
or she'll hit granite.

She'll wait, she has that patience,
until I'm watching the high clouds,
thinking, *soon I'll be that drift*,
dew, *drizzle*, *the sap in the vein*,
a winged seed, *a drupe*,
the hole drilled in an acorn,
pollen that gives the breeze
an almost-body—soon
I myself shall be the night sky—

that's when she jumps.

3.
It's dark now. The child
is wandering, trying to whistle,
dragging her kite behind her.

The fire at the summit is Venus,
so close I have to look away.

—D. Nurkse

guidance: "I said, 'Hey, Steve, you're a good scientist, and a very successful businessman as well. And, yeah, I want to be that.'"

While JK was working at Quake's lab, studying flu vaccines, Steve Jobs died. As students and other disciples flocked to Jobs's house, JK was struck by the outpouring of emotion. For a researcher, the pinnacle of accomplishment might be a publication in *Nature* that a hundred people read. "Jobs made something that benefits everyone," JK said. "Even a kid could use the iPhone."

In 2012, JK left Stanford for the Southern University of Science and Technology, where he described himself not as "a professor in the traditional sense" but as "a research-type entrepreneur." His ties to top American universities were valuable to SUSTech, which was determined to become a world-class institution. He founded a joint laboratory with Michael Deem, his Ph.D. adviser at Rice, and set about commercializing one of Quake's inventions, a method for sequencing DNA from a single molecule. With funding from angel investors and the city government, he started Direct Genomics, which sought to build a desktop sequencer for use in hospitals.

JK was a skilled networker—people responded to his sincerity and drive—and he stacked his company's advisory board with prominent scientists from China and the U.S., including Craig Mello, a Nobel-winning biologist. Ryan Ferrell, an American publicist who worked with him, told me, "I think JK was definitely trying to build his own career outside from the shadows of Stephen Quake's name."

Like many of his peers, JK was captivated by CRISPR. In a document that he created called "Change the World," he referred to it as "God's magic scissors." In 2016, he attended a CRISPR conference, and introduced himself to Jennifer Doudna, asking her to take a selfie with him, which he posted on his blog. Gene editors typically devote years to the study of one or two genes, governing one or two diseases. JK didn't have time for that. He wanted to develop a product with the broadest possible relevance: a "genetic vaccine" that could prevent cancer, diabetes, Parkinson's, and Alzheimer's.

If JK was looking for permission to tinker with the human genome, he could find it, by implication, all around. George Church, the eminent Harvard scientist who is trying to bring back the woolly mammoth by editing elephant DNA, frequently invoked CCR5 on a list of "large impact" genes—which also included those that could make muscles leaner, bones stronger, and bodies less sensitive to pain. In 2017, JK met James Watson, a co-discoverer of the structure of DNA, and asked if it was acceptable to modify genes in an embryo. Watson, whose later career has been marred by unrepentant racism, gave him a handwritten response, which JK hung in his lab: "Make people better."

JK began to conduct studies in mice, monkeys, and humans, using CRISPR to delete CCR5 in embryos that would not be implanted. It was important, he knew, to reflect an understanding of the ethical concerns that some of his Western colleagues were raising about editing human embryos. Presenting at a conference in 2017, he said, "We should do this slow, and with caution, because a single case of failure may kill the entire field."

Even as JK urged patience, though, he had already recruited volunteers for a first-in-human clinical trial. The study promised to pay for I.V.F., delivery costs, an extended hospital stay, and health insurance for the babies. (It would also cover abortion costs in the case of a serious genetic defect.) All told, each couple would receive some forty thousand dollars' worth of medical services and stipends.

Although the study was presented as a benefit to its subjects, its designer did not disguise his commercial interest. Volunteers were warned to "strictly observe the secrets of the project team" and forbidden to "disclose any commercial secrets." JK would have the exclusive right to publicize the experiment, and to exploit imagery of the babies, including in elevators and on billboards and cars. The risk, however, rested with the subjects. The contract insured that the embryos would be tested before implantation, but it exempted

"I spend all day doing the witch's evil bidding. By the time I get home, I'm too tired to do anything evil for myself."

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the researchers from responsibility for any unexpected mutations.

JK limited the candidates to educated volunteers, making him less vulnerable to claims of exploitation. When he had assembled eight couples, fertility treatments began. In early 2018, he implanted an edited embryo in one of the women, but it didn't take. Then he tried with another couple, Grace and Mark, implanting two CRISPR-modified embryos. These would become Lulu and Nana.

He Jiankui was an eclectic, constant note-taker—documenting meetings, underlining books, screenshotting, memorializing. He shared this trove of material with employees, propping his MacBook Air on a table while they gathered around. Though he now claims to recall little of the material or its creation, I was able to gain access to some of the files, which reveal a young man imagining himself on a historical stage. "Mission: science and technology changes the world," he wrote. "Vision: China's Edison." In notes from a meeting with a potential collaborator, he jotted down a Chinese proverb: "You're standing there talking, but your back isn't the sore one." The saying dismisses hand-wringers and armchair critics who gripe while others do the hard work.

Throughout 2017 and 2018, JK contacted dozens of fellow-scientists, including a number of Nobel winners, to get technical advice and build consensus around his project. Michael Deem, his Ph.D. adviser at Rice, was closely involved. A video leaked to *Science* shows Deem sitting at a conference table during an informed-consent conversation with potential volunteers. (Deem, who left Rice after the scandal broke, has said through an attorney that he "did not meet the parents of the reported CCR5-edited children.") A member of the Chinese Academy of Sciences was also in the room. When questioned about his role, he acknowledged that he was there, but claimed he didn't follow what was happening, adding that he often goes to meetings and doesn't pay attention.

As JK made progress, he provided Stephen Quake with updates. The *Times* reported that in the spring of 2018 he sent an exultant e-mail: "Good News! The women [sic] is pregnant, the genome editing success!" Quake wrote back, "Wow, that's quite an achievement!" Six months later, JK e-mailed again, letting Quake know that the babies had been born, and requesting a meeting in San Francisco to discuss "how to announce the result, PR, and ethics." According to notes that JK kept in a document titled "Stephen Quake advice," Quake was encouraging, saying, "Congratulations! You made something big! Your life will be changed." He wrote that Quake also cautioned him to document everything, lest he be suspected of scientific fraud. (Quake, who is now, in addition to his role at Stanford, the president of the Chan Zuckerberg Biohub Network, says that JK's notes mischaracterize his involvement.)

Some scientists later said that they felt duped by their encounters with JK: he would ask questions and posit research hypotheticals without revealing that his clinical trial was already under way. Many apparently expressed serious reservations about his project's safety, ethics, and legality. "I'm glad for you, but I'd rather not be kept in the loop on this," Craig Mello wrote when JK informed him of Grace's pregnancy. Pei Duanqing, a prominent Chinese stem-cell biologist, was furious when he found out about the twins. He told JK that the research was an embarrassment, and warned him that he would go to jail.

JK proved impervious to criticism. He tended to cherry-pick good news, and had a cringey habit of name-dropping to create the illusion of broad support from prominent colleagues. Presenting his work in Hong Kong, he thanked William Hurlbut, a neurobiology professor at Stanford, who in fact had tried to dissuade him from proceeding. (Hurlbut, along with Quake and another professor whom JK con-

sulted, were investigated by Stanford and cleared of misconduct.)

JK understood that his work needed to be framed correctly—as a miracle, not a catastrophe. Otherwise, he wrote in a strategy document, it could easily be "swallowed up by public opinion." In early 2018, he reached out to Ferrell, the publicist, who had a background in science and spoke some Mandarin, and persuaded him to join the project. "He's an enthusiastic, infectious individual who had a history of making stuff happen," Ferrell told me. "It's pretty easy to be convinced by him."

Ferrell was alarmed to discover how far along JK was. "When I heard that a woman was pregnant, I thought, Oh, Jesus—I don't think she's understood what she's done. There's no way that CRISPR is ready for this," he said. Nonetheless, he agreed to steer JK through the critical next few months. "I thought I might have some influence with this guy," he said. "That was a very naïve thought."

Ferrell moved to Shenzhen, and got his first look at JK's lab. Afterward, he texted his partner, "This is just totally fucked." He told me, "There's a whole bunch of issues in recordkeeping there that were just atrocious." The preliminary animal studies that JK had conducted to test the safety of the procedure were undermined when someone in the lab deleted raw data. (JK says that the data were later recovered, and denies that there were problems with recordkeeping.) Meanwhile, Ferrell said, "the pregnancy was a ticking clock." He recalls that he confronted JK, saying, "You can't do any more human implantations. You need to take care of this woman and these two children with your full attention. And you should spend all of your time looking for what could have gone wrong." Nevertheless, the experiment continued. A total of thirty-one embryos were created and treated with CRISPR; six women were implanted with edited embryos.

That August, JK travelled to the United States on behalf of his genome-sequencing company. Increasingly worried about his judgment, Ferrell thought to introduce him to John Zhang, a Chinese-born reproductive endocrinologist who has two I.V.F. clinics in New York. Zhang had been involved in a controversy two years earlier, for conducting a procedure in which he transferred mitochondrial DNA from one egg to another, which he then fertilized, creating a so-called three-parent baby. Mitochondrial transfer is banned in the United States, so Zhang implanted the new egg into his patient in Mexico, where, he said, "there are no rules." The F.D.A. censured him amid a frenzy of publicity.

Ferrell thought that Zhang's experience would serve as a cautionary tale. Instead, he said, "they met and instantly, unfortunately, became friends." JK's notes from the meeting suggest that Zhang took an unusually bullish stance on gene editing. "Zhang supports genome editing even for human enhancement purpose," he wrote. "People do cosmetic surgery to become beautiful, why is it wrong to do it at birth, there is no difference." As for the embryo-editing project, JK noted, "Zhang encouraged me to move on to clinical trial and ignore the ethics controversy."

JK and Zhang agreed to collaborate on a for-profit center in Hainan, where a special economic zone supported investment and eased regulations. In a draft of a presentation that they used to pitch officials, they proposed creating "China's Mayo Clinic," a world center for gene editing and mitochondrial transfer, which would

soon generate a hundred and forty million dollars a year. "Because of ethical and social disagreements, the development of these technologies has been held back," the presentation states. In Hainan, though, "certain medical products and medical technologies can be imported and used before they are approved" by Chinese regulators. They proposed a meeting with President Xi Jinping, because "genome editing has to become a national strategic point"—what electronics was to Japan in the eighties, and the Internet was to the U.S. in the nineties. By 2020, they predicted, "Chinese genome-editing products will become fashionable around the world." (Zhang did not respond to requests for comment, but he previously told *Science* that he had abandoned any plans of working with JK.)

At the time, a Chinese regulation forbade "genetic manipulation on gametes, zygotes, and embryos for the purpose of reproduction," but enforcement was lax, and there were no criminal penalties attached. According to Eben Kirksey, a medical anthropologist who has written a book about the CRISPR babies, various government officials encouraged JK to pursue his experiments; perhaps, in the light of a scientific breakthrough, the rules would be flexible. One of his confidants, a high-ranking Communist Party official in Beijing, ran economic development for the Thousand Talents Plan, a recruitment and funding program that, in 2017, gave JK a cash grant. Ferrell told me the official "said that he would offer support as long as it wasn't too controversial." Locally, JK had an ally in Xie Bingwen, the deputy head of a district in Shenzhen. Ferrell said that Xie, who took JK to see a village where AIDS was rampant, "was a direct supporter, and influenced JK's choice of CCR5."

China is notorious for its surveillance programs, and yet, Ferrell told me, JK was notably indiscreet. He wasn't trying to hide his project; he was trying to attract support. "JK was speaking with the military-hospital head in the lobby, with security guards listening," he said. "He had his lab meetings in a café right near SUSTech, talking loudly out in the open."

China, like many other countries, has a formal ethical-review process for research on human subjects, which draws on the Nuremberg Code, adopted after the atrocities of Nazi human experimentation. JK filed an application for approval with HarMoniCare Shenzhen Women's and Children's Hospital, a high-end clinic. His project, he wrote, would be the greatest medical achievement since the invention of I.V.F. He cited the 2017 report by the U.S. National Academies

of Sciences, Engineering, and Medicine, saying that it had endorsed "experimental study on the gene editing of embryos as therapeutics for the treatment of serious diseases." He left out the report's many caveats, including a warning that the science was not yet safe for use in humans.

HarMoniCare granted the approval. But, Ferrell told me, the procedures—egg extraction, fertilization, CRISPR, and implantation—did not take place there. They were performed instead at a hospital in Guangzhou, where JK did not have approval but did have a relationship with a compliant doctor. (The hospital did not respond to a request for comment.) When Quake learned of this discrepancy, he urged JK to resolve it, saying that it was imperative to have approval from all the participating institutions. According to JK's notes, Quake warned him, "Everything you do will be carefully viewed with a magnifying glass, and you must address the ethics." JK wrote that Quake also provided some tactical advice for overcoming concerns: "Tell the director of the hospital that if the hospital agrees to the ethics, their hospital would instantly become well-known globally," and that a "great medical accomplishment would be born there." (Quake denies coaching JK in this way.)

According to Ferrell, the administrators of the Guangzhou hospital were informed of the procedures that had taken place there only after the twins were born, at which point they hurriedly signed a document recognizing HarMoniCare's approval and "backdated the form to CYA." During the investigation, HarMoniCare said that its ethics committee had never met to review the approval, suggesting that JK had forged the form. Ferrell argued that this was "deceptive"—that the real fraud was on the part of the hospital in Guangzhou. He said, "That's a messier truth that points to a system affected by more than one 'rogue scientist.'"

In the months before the twins' birth, JK girded himself to justify his choices. The CCR5 gene was well studied—familiar to researchers, and even to some sectors of the general public. A decade earlier, the world had learned about CCR5 through the seemingly miraculous case of the Berlin Patient, an H.I.V.-positive man in Germany. The patient, who later revealed that his name was Timothy Ray Brown, was dying of leukemia, and needed a stem-cell transplant, so his doctor proposed finding a donor with a mutation that disabled CCR5. (This mutation occurs naturally in about one per cent of Northern Europeans.) Brown agreed, and, on the day of his transplant, he stopped taking antiretroviral medicine; when tests afterward found no detectable virus, he was declared the first person ever to be cured of H.I.V.

The success of the Berlin Patient, JK believed, provided some assurance that editing CCR5 could work in a human subject. But gene surgery is not required to prevent H.I.V. infection, and questions about JK's true motivations have persisted. Studies have shown that CCR5-edited mice exhibit marked improvements in cognitive function and memory—a golden egg of eugenics. "He used the excuse that he was trying to confer H.I.V. resistance," one prominent stem-cell scientist told me. "I suspect it was an attempt at enhancement."

Along with the potential benefits, editing CCR5 may have significant drawbacks. The same gene that creates a receptor for H.I.V. also helps protect the body from West Nile virus and the flu. Without it, Lulu, Nana, and Amy could be more vulnerable to infection. There is also evidence that disrupting CCR5 affects bone growth. Had JK created superpeople? Or had he inadvertently condemned unconsenting not-yet-born victims to potentially serious health problems?

Similar anxieties accompanied the birth of Louise Brown, the first I.V.F. baby, in 1978. For years, controversy had been growing about the possibility of "test-tube babies," along with dire warnings that they could be severely deformed. The interest in Brown was as intense as the skepticism about the process. A camera crew was present at her delivery, at a hospital in England. After she was born—healthy—an I.V.F. expert told the Washington *Post* that the science wasn't yet settled, saying, "The normality of the offspring is still somewhat in question." Test tubes stained with fake blood were sent to her parents' home by groups opposing what they considered unnatural and immoral conception. Brown, who is now forty-five, was an involuntary celebrity before she was born, and is still pursued by news crews from as far away as Uzbekistan.

Three years after Brown's birth, Elizabeth Carr became the first baby born by I.V.F. in the United States. Armed guards were posted in the hospital, and her parents received hate mail. "For anybody that had a problem with the way I was born, it always came down to: You're tampering with nature," Carr told me. "You're playing God."

As a child growing up in public, Carr said, she felt enormous pressure to prove her normalcy. Her birthdays, like Louise Brown's, were celebrated with major media coverage. At checkups, in addition to monitoring the regular developmental indicators, doctors subjected Carr to psychological testing; she remembers having her brain waves measured. "I was part of many studies up until my late twenties," she told me. "At that point, they finally kind of gave up. 'We can't find anything wrong with her.'"

Carr works at a genetic-testing company, which screens for mutations and abnormalities in embryos before they are implanted. (Pre-implantation genetic testing is increasingly common in I.V.F., and is often cited as a reasonable alternative to embryo editing.) I asked what she thought when she heard about Lulu and Nana's births. "I remember thinking, Oh, I hope that the press doesn't go after that," she said. "These kids had no say, right? Regardless of how they got here, they're here now."

Because of the stigma associated with H.I.V. in China, JK and his team took pains to protect the subjects' anonymity. Lulu, Nana, and Amy are pseudonyms; so are Mark and Grace. This shield became more crucial once controversy erupted. Mark and Grace were the object of death threats online; five days after the twins' birth was revealed, Ferrell received a message from a worried member of the research team. "Mark and Grace is extremely pressure," he wrote. "They

TIPS FOR TRANSPORTING CHILDREN BY BIKE IN NEW YORK

EMBRACE THE SLEEP CYCLE.

INSURE YOUR PASSENGER HAS A CLEAR VIEW.

BE SURE THE RIDE IS COMFORTABLE.

MAKE IT FUN.

LET THEM FEEL INVOLVED.

TRY TO RESIST THE URGE TO RELY ON SCREENS.

are consider suicide with Lulu Nana. So please release no more news. No one disturb them. Let it calm down."

In the five years since the experiment, very little information has come out about the twins, and almost none about Amy; all that is known is that she was born sometime in 2019. According to Ferrell, while JK was in prison his wife assumed responsibility for supporting the families, sending money for their medical care, until the government interceded. The volunteers, induced to participate by the stigma associated with H.I.V., now faced an even more threatening stigma for their children: they were the world's first edited humans, and society might reject them as dangerous mutants.

From the moment the children's existence was made public, scientists have clamored for information about their genetic health, amid dire warnings of likely abnormalities. Because JK's data have never been published, experts have been left to pore over his short talk at the Hong Kong conference and an accompanying slide presentation, and to scrutinize his few statements. In one of his YouTube videos, he said that he had sequenced Lulu and Nana's entire genome before implanting the embryos, and again after they were born. The results, he said, indicated that the procedure had worked safely, as intended. "No gene was changed except the one to prevent H.I.V. infection," he said.

This was, at best, a gross oversimplification. In the Northern European variant of CCR5 deletion, thirty-two base pairs of DNA are missing from both the maternal and the paternal chromosomes. JK's results didn't match this standard. Instead, in one twin, he had created a novel mutation of thirteen base pairs—probably but not definitely enough to prevent an H.I.V. infection. The other twin had one mutated and one normal copy of the CCR5 gene, weakening the prospect of immunity.

Another serious concern is that both twins are likely genetically "mosaic," made up of edited and unedited cells, which may mean that neither of them has any special resistance to H.I.V. at all. Kiran Musunuru, a prominent gene editor, argued that JK's work was not a CRISPR breakthrough—it was "a graphic demonstration of attempted gene editing gone awry."

The same scientists who condemned JK for conducting the experiment remain intensely curious about its results. Even if the research was abhorrent, the data were unprecedented and potentially significant. Why not learn from them? David Baltimore, who has suggested a registry for gene-edited children, told me, "It should be studied, and we do not know whether there is anybody studying these children. JK is silent on that, and the Chinese authorities are silent."

Last year, two Chinese ethicists published a paper calling on the government to provide "special protection" for the children, including ongoing examination of their genomes, access to psychological treatment, and the establishment of a center to study diseases that may arise from the edits. "It is a fact that CRISPR-edited persons form a new group in human beings," they wrote. "So is there any moral difference between this new group and the rest of human beings?"

In our conversations, JK reiterated that the edited children are "living happily with their parents," and said that he and his research team are still available to the families. Although his informed-consent documents included a plan for eighteen years of medical support, genetic testing, and the release of data to the public, JK opposes the idea of a research institute devoted to the CRISPR babies. Their privacy is too important, especially now that the experiment that brought them into existence is viewed as monstrous. "I always put the happiness of the family first," he said. "If they need any support on any health issues of the children, they will contact me."

Ferrell believes that even routine medical treatment will be complicated for the families. "There's always this risk that a new doctor is going to say, 'Oh, my God, you're *those* people.' And their identities might be revealed locally. And so then what does that do? Does your child start getting lower levels of care because you simply don't seek it? I think there's an absolute critical need for these families to receive confidential medical care outside of China."

This past March, several hundred of the world's leading genetic scientists convened at the Francis Crick Institute, in London, for the Third International Summit on Human Genome Editing. Long planned as the final such conference to address the CRISPR revolution, it was the first time the group had gathered since the 2018 Hong Kong conference, and the meeting became a de-facto referendum on the legacy of JK's work.

On a plaza in front of the institute's swooping façade, a small group of protesters held up a banner that read "STOP DESIGNER BABIES." Inside, an exhibit called "Cut + Paste" invited the public to share views on gene editing: "Would you erase disease? Would you enhance your body? Where would you draw the line?" Researchers presented the latest developments, particularly in somatic genome editing. One patient, Victoria Grey, delivered a moving account of her arduous and groundbreaking treatment. After having her bone-marrow cells edited with CRISPR, she was now functionally cured of sickle-cell disease.

Leading up to the London summit, JK had appeared at various academic meetings—part of an apparent comeback campaign. The summit participants began to dread the possibility that he would show up in London, too. "Crisis management started months ago," Eben Kirksey, the medical anthropologist, told me at the conference. In a series of worried phone calls, the scientists had discussed how they might react to his presence: "Would we have security take him out? Would we welcome him in?" As it turned out, JK skipped the conference. Instead, he posted a short video on Twitter, congratulating his colleagues on a successful meeting and offering some "ethical principles" for genome editing, as if he were not the most reviled figure in the field.

In JK's absence, his work was invoked as an aberration, a bug that had

been fixed. There were discussions of laws, regulations, and problems of enforcement, including an entire session devoted to reforms that China has made since JK's breach; in 2021, it amended its criminal code to ban the implantation of edited human embryos. Benjamin Hurlbut, a bioethicist at Arizona State University who is the son of Stanford's William Hurlbut, has been deeply engaged with JK since before his arrest. He told me that his punishment and excommunication provided a false resolution, allowing other scientists to pursue their work without facing its implications. "It was a geopolitical P.R. move," he said. "He has become a kind of scapegoat onto which you collect the pollution in the community."

The summit made it clear that genetic engineering continues to move, albeit gingerly, toward the future that JK sought to hasten into existence. On the last morning, there was a panel during which British and American scientists were celebrated for their laboratory work editing human embryos—the same kind of work that, when it was done in China nearly a decade ago, caused Western scientists to mobilize and write editorials. When the question of ethics arose, the panelists mumbled uncomfortably and passed the mike. The situation struck a delegate from China, who asked not to be named, as absurd. Afterward, he called out to me, "See the double standard?"

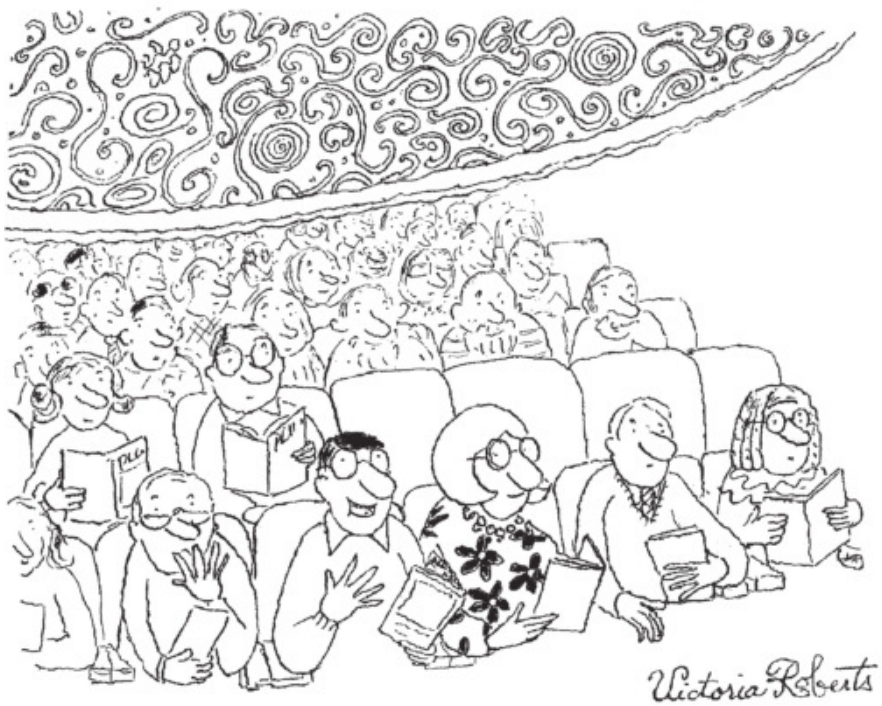
For many in the field, the ethics of editing human embryos are contingent on the science. When the protocol is safe—when the problems of unintended mutations and mosaicism are solved in the lab—the urgency of exploiting the new technology to save lives seems likely to push any remaining reservations aside.

Shoukhrat Mitalipov, a researcher at Oregon Health & Science University, in Portland, runs one of two laboratories in the U.S. that edit human embryos; his lab is unique in being authorized to use donated human eggs, rather than relying solely on discards from I.V.F., which are typically of lower quality. Mitalipov, who was born in Kazakhstan, is a small, dark-haired man with a lilting accent. His office has a view of the Willamette River, and its walls are decorated with patents, cover stories from *Nature* and *Cell*, and front-page newspaper writeups of his work. For the past decade, he has been conducting preclinical studies on embryos, working to eliminate mosaicism. "We have very high-bar standards," he told me. "If you have a hundred embryos, ninety-nine probably have to be purely repaired. There should be no side effects." At that point, he believes, the technology will be ready to use to prevent disease in human beings. (His other interest is in mitochondrial transfer—"three-parent babies"—which he is pursuing in countries where it is permitted. Last year, he helped an I.V.F. clinic in Athens conduct the procedure on twenty-five infertile families, resulting in six births, and he is now planning a full clinical trial outside the United States.)

Mitalipov is an undaunted advocate for heritable editing in humans. A hundred million people suffer from rare genetic diseases, and he believes that somatic editing can do only so much to help them. "It's not going to alleviate transmission to the next generation," he said. "The diseases will keep recurring over and over. If you want to really get rid of the root, you have to go back to the germline." The idea behind somatic editing, he said, is "Let them be born and then we will deal with them." Heritable editing, by contrast, is meant to cure disease before it can manifest—and eventually to eradicate disease altogether. Among other arguments, he notes that gene editing is more efficient than later interventions. "It's one cell versus the whole body," he said.

Mitalipov studies genes that cause hypertrophic cardiomyopathy, a heart condition that afflicts one in five hundred people, and is the leading cause of sudden death in young athletes. In 2017, he published a paper focussed on one of those genes, showing that he had been able to use CRISPR to disrupt it without creating off-target edits, and with only limited instances of mosaicism.

The lab is divided into spaces designated for working on mouse embryos (where the equipment is federally funded) and for working on human embryos (where it is not). In the human-embryo room, I met Nuria Martí Gutierrez, the lab's chief embryologist. She had three eggs to fertilize that day, two from the donor program and one an I.V.F. discard. Working under a



"If a wine sippy cup falls from the mezzanine and hits me on the head, wounding me temporarily, you will let me know how this ends, won't you?"

microscope, she prepared a petri dish with three drops of oil. To the first, she added the CRISPR solution. In the next, she placed sperm, donated from the hospital's cardiac department, that had a deleterious mutation at the MYH7 gene, a cause of hypertrophic cardiomyopathy. To the third drop, she added an oocyte—an egg.

Martí Gutierrez moved the dish over to a larger microscope, equipped with pipettes manipulated by joysticks. With a narrow, bevel-tipped pipette, she bopped a sperm on the tail, immobilizing it so that she could draw it into the pipette's chamber. Then she washed the sperm in the CRISPR solution. "Now it's all going inside the oocyte," she said. Invisibly, the CRISPR, with its guide-RNA protein, found and cut MYH7. In minutes, she had made two edited human embryos. Within a few days, after the cells had divided several times, the lab would sequence the DNA of each cell, checking to see if the desired edit had occurred in each one, before disposing of them.

"Do you want to try it?" Mitalipov asked me, then added, chuckling, "Don't tell anyone."

Martí Gutierrez set me up with the discarded I.V.F. egg, which was less likely to fertilize properly, and therefore less precious to their research. With one joystick, I chased sperm around the petri dish: a sex-ed version of the tag games that I'm constantly deleting from my children's phones. When I finally caught one, I dipped it in CRISPR. Switching to the other joystick, which maneuvered a larger pipette, I braced the egg. Then, using the pipette with the edited sperm in it, I pierced the egg's membrane. "Keep going," Martí Gutierrez said. "There is good." I glanced at a monitor attached to the microscope. What I saw was as familiar as the image of Earth from space: the large bobbling egg, the restless sperm. Basic human life, and an outermost frontier.

Mitalipov thinks that there will be legitimate clinical studies of heritable editing within a decade. Already, two new techniques, base editing and prime editing, have been developed that improve the capabilities of CRISPR—not just cutting DNA to disable genes but chemically rewriting parts of the genetic code, a process that some liken to a find-and-replace function in a word processor. David Liu, of the Broad Institute of M.I.T. and Harvard, who invented these new techniques, told me, "If progress continues at this remarkable current pace, there will be a point at which people might legitimately ask, 'Is it unethical to *not* treat?'"

"Congrats! You did it, you made it through the day! You can watch a little TV as a treat."

Before leaving Portland, I visited Marlo and Joe Urbina. In 2008, they became the parents of twins, Max and Sofia. Unbeknownst to Marlo and Joe, they were both carriers for Batten disease, a rare degenerative disorder that destroys the central nervous system. The kids are now teen-agers. Max is healthy. Sofia has Batten, for which there is no known cure.

In their back yard, we sat at a picnic table beside a bountiful vegetable garden, and they told me about the course of Sofia's illness. When she was a little girl, they hadn't noticed anything different about her. She was an early reader, and looked after her brother. "She seemed a bit clumsy and inattentive," Joe said. "But there was no big deal at first. It was just, you know, normal kids." In kindergarten, though, Sofia started to lose vision, and was given a diagnosis; by second grade, she was functionally blind. "They tell you, 'Go home, make memories, because it's gonna get ugly,'" Marlo said.

As the disease progressed, Sofia began to change. "Her cognitive skills were dropping off, and her emotional swings were getting to be tremendous," Joe said. She had problems with self-regulation, and her memory deteriorated. She became angry, ruminative, and rigid. "They call it juvenile dementia," Marlo said. Kids with Batten rarely live into adulthood.

At fourteen, Sofia can no longer walk, and it's hard to understand her when she talks; she has thrashing and screaming fits that can last for hours. Max, who has maintained a close relationship with his twin, has to go into his room and turn on a noise machine to get his homework done. Marlo said that Sofia understands her prognosis. "She's aware and she's, you know, heartbroken," she said. "She will say, a lot lately, 'My eye, my eye, my brain, my eye.' She knows that it's Batten, and that's why she can't see and that's why she can't stop screaming and that's why she can't walk. She'll scream for forty-five minutes, and then she'll say afterwards, 'I'm sorry, my brain.' You know, you just hug her and you just say, 'It's O.K., baby, it's not your fault, it's O.K.' She's scared."

When the Urbinas first heard about CRISPR being used in somatic gene

therapy, they were hopeful that Sofia might one day benefit. As that hope has faded, they have redirected their energy to the future. "Max is not affected, but Max is a carrier," Marlo said. "And that means he can pass that disease on. This is a horrible disease. It's like A.L.S. and Alzheimer's had a baby. I want to see this disease *gone*."

Gene editing, she believes, has the potential to eliminate Batten, along with hundreds of other devastating diseases. "I think most Americans would say that we do this kind of science so that we can cure these things," Marlo said. "And to me the best cure is keeping the disease from happening in the first place."

Marlo estimates that Sofia has two to three more years to live. She told me, "Last night, I'm holding her, and she's shaking and she's, like, 'When, when, when?' And I said, 'You know, people's bodies get tired, and it's O.K. when they get tired. And if you're feeling tired now, we'll just rest. And when your body can't do it anymore, it's O.K.'"

Before I left, Marlo asked me if I wanted to meet Sofia. We went into her room. Sofia, a tall adolescent with a pale complexion, was lying in a hospital bed. A Scooby-Doo cartoon was on the television, and her grandmother sat nearby. Sofia was playing with some brightly colored squishy toys that resembled jellyfish. She suddenly seemed to worry that they might be real. Marlo reassured her, and mentioned that Sofia always loved the beach. "We have lots of seashells that we have collected and bought over the years," Marlo said. "And, Sofia, we're going to go visit the beaches soon again." I told Sofia that it was time for me to go; I had to fly home on an airplane.

"I can't," she said.

At home later that night, I got a series of texts from Marlo, including videos of Sofia as one of her fits came on. Marlo held her, but she looked terrified. It sounded like she was saying, "Help."

In 2015, when scientists began to wrestle in earnest with how to manage the terrific potential of CRISPR, the laboratory work was so rudimentary that the ethical questions could be deferred. Back then, David Baltimore told me, "we didn't have to resolve the thorny issues, because the technology was simply not good enough to get a targeted result. Nobody would be stupid enough to use this at this point."

Until He Jiankui, Baltimore believes, a kind of moral force field prevented scientists from taking the next logical step with their research. "That's bound to weaken as the science gets better," he said. "There will come a moment when all the big questions have been answered, and where a doctor is facing a patient."

But who decides which conditions are worthy of treatment? Though most of the scientists I talked to supported tight restrictions on heritable gene editing, and all strongly opposed using the technology for enhancement, very few suggested outlawing it entirely. "There's a presumption of a self-evident distinction between legitimate and illegitimate work," Benjamin Hurlbut, the bioethicist, said. "They build on each other's work, and it becomes part of this wheel that's only going in one direction."

In 2018, JK had been mindful to present his work as a treatment for serious disease, not as an exercise in eugenics. In the videos he released, he said, "Gene editing is and should remain a technology for healing. Enhancing I.Q. or selecting hair or eye color is not what a loving couple does." But to Hurlbut the H.I.V.-prevention therapy represents a troubling precedent. JK was able to recruit volunteers because, in China, H.I.V. dooms its carriers to difficult lives. In other cultures, different urgencies could prevail: imagine an attempt to address the profound social inequality associated with race in the United States by editing away features that can drive discrimination. "If you move into the zone of fixing social problems with genetic changes, that's throwing a door wide open that takes us to terrifying places," Hurlbut said. "The mandarins of science have a remarkable inability to see that's the doorway this first experiment passed through, and it is the most plausible doorway, and people will be inclined to avail themselves of it again." In mid-August, he sent me a paper from a group at Stanford, documenting newly discovered genes governing the production of melanin, which determines skin pigmentation.

By refusing to accept the role of rogue scientist, JK presents a kind of rolling crisis for the scientific community—a dark mirror of its own ambitions. Expanding beyond his goal of devising a therapy for Duchenne muscular dystrophy, he said last November that he was hoping to cure as many as five genetic diseases in two to three years. Weeks before the Third International Summit on Human Genome Editing, in London, he made headlines when a "top talent" visa that he had obtained to enter Hong Kong was revoked. Chinese scientists took the opportunity to call on the government to stop his work. "[We] strongly condemn He Jiankui's refusal to reflect on his crime," they wrote. On Twitter, JK acted as if nothing had happened. A post a few days later read, "Summer intern hiring! Anyone who supports human genome editing is welcomed to apply."

At the end of June, he posted a research proposal on the use of base editing to target a gene involved in Alzheimer's. Noting that CRISPR tools "may have unwanted and potentially dangerous consequences if they are applied to human embryos," he said that he planned to start in mice, before moving on to nonviable human embryos. JK was, it seemed, returning to the plan that he'd laid out years before. He had disrupted a single gene, CCR5, when he edited Lulu, Nana, and Amy. Now he was progressing to complex diseases in which many genes were implicated. In the Alzheimer's proposal, he pointed to another beneficial side effect of the edit he contemplated. "The mutation," he wrote, "may also help prolong the lifespan of its carriers." The protective variant had been found in the brain of a person almost a hundred and five years old.

The last e-mail I got from JK, in which he told me that he wasn't taking more interview requests at the moment, suggested how and where he would conduct the next phase of his research. His e-mail signature listed a new position, at Wuchang University of Technology, in Wuhan, where he is now the director of the Institute of Genetic Medicine. ♦

ANNALS OF NATURE

TALK TO ME

Can artificial intelligence allow us to speak to another species?

BY ELIZABETH KOLBERT

Ah, the world! Oh, the world!
—*"Moby-Dick."*

David Gruber began his almost impossibly varied career studying bluestriped grunt fish off the coast of Belize. He was an undergraduate, and his job was to track the fish at night. He navigated by the stars and slept in a tent on the beach. "It was a dream," he recalled recently. "I didn't know what I was doing, but I was performing what I thought a marine biologist would do."

Gruber went on to work in Guyana, mapping forest plots, and in Florida, calculating how much water it would take to restore the Everglades. He wrote a Ph.D. thesis on carbon cycling in the oceans and became a professor of biology at the City University of New York. Along the way, he got interested in green fluorescent proteins, which are naturally synthesized by jellyfish but, with a little gene editing, can be produced by almost any living thing, including humans.

While working in the Solomon Islands, northeast of Australia, Gruber discovered dozens of species of fluorescent fish, including a fluorescent shark, which opened up new questions. What would a fluorescent shark look like to another fluorescent shark? Gruber enlisted researchers in optics to help him construct a special "shark's eye" camera. (Sharks see only in blue and green; fluorescence, it turns out, shows up to them as greater contrast.) Meanwhile, he was also studying creatures known as comb jellies at the Mystic Aquarium, in Connecticut, trying to determine how, exactly, they manufacture the molecules that make them glow. This led him to wonder about the way that jellyfish experience the world. Gruber enlisted another set of collaborators to develop robots that could handle jellyfish with jellyfish-like delicacy.

"I wanted to know: Is there a way where robots and people can be brought together that builds empathy?" he told me.

In 2017, Gruber received a fellowship to spend a year at the Radcliffe Institute for Advanced Study, in Cambridge, Massachusetts. While there, he came across a book by a free diver who had taken a plunge with some sperm whales. This piqued Gruber's curiosity, so he started reading up on the animals.

The world's largest predators, sperm whales spend most of their lives hunting. To find their prey—generally squid—in the darkness of the depths, they rely on echolocation. By means of a specialized organ in their heads, they generate streams of clicks that bounce off any solid (or semi-solid) object. Sperm whales also produce quick bursts of clicks, known as codas, which they exchange with one another. The exchanges seem to have the structure of conversation.

One day, Gruber was sitting in his office at the Radcliffe Institute, listening to a tape of sperm whales chatting, when another fellow at the institute, Shafi Goldwasser, happened by. Goldwasser, a Turing Award-winning computer scientist, was intrigued. At the time, she was organizing a seminar on machine learning, which was advancing in ways that would eventually lead to ChatGPT. Perhaps, Goldwasser mused, machine learning could be used to discover the meaning of the whales' exchanges.

"It was not exactly a joke, but almost like a pipe dream," Goldwasser recollected. "But David really got into it."

Gruber and Goldwasser took the idea of decoding the codas to a third Radcliffe fellow, Michael Bronstein. Bronstein, also a computer scientist, is now the DeepMind Professor of A.I. at Oxford.

"This sounded like probably the most crazy project that I had ever heard about," Bronstein told me. "But David has this kind of power, this ability to convince and drag people along. I thought that it would be nice to try."

Gruber kept pushing the idea. Among the experts who found it loopy and, at the same time, irresistible were Robert Wood, a roboticist at Harvard, and Daniela Rus, who runs M.I.T.'s Computer Science and Artificial Intelligence Laboratory. Thus was born the Cetacean Translation Initiative—Project CETI for short. (The acronym is pronounced "setty," and purposefully recalls SETI, the Search for Extraterrestrial Intelligence.) CETI represents the most ambitious, the most technologically sophisticated, and the most well-funded effort ever made to communicate with another species.

"I think it's something that people get really excited about: Can we go from science fiction to science?" Rus told me. "I mean, can we talk to whales?"

Sperm whales are nomads. It is estimated that, in the course of a year, an individual whale swims at least twenty thousand miles. But scattered around the tropics, for reasons that are probably squid-related, there are a few places the whales tend to favor. One of these is a stretch of water off Dominica, a volcanic island in the Lesser Antilles.

CETI has its unofficial headquarters in a rental house above Roseau, the island's capital. The group's plan is to turn Dominica's west coast into a giant whale-recording studio. This involves installing a network of underwater microphones to capture the codas of passing whales. It also involves planting recording devices on the whales themselves—cetacean bugs, as it were. The data thus collected can then be used to "train" machine-learning algorithms.

In July, I went down to Dominica to watch the CETI team go sperm-whale bugging. My first morning on the

Sperm whales communicate via clicks, which they also use to locate prey in the dark.

ILLUSTRATION BY SOPHY HOLLINGTON

island, I met up with Gruber just outside Roseau, on a dive-shop dock. Gruber, who is fifty, is a slight man with dark curly hair and a cheerfully anxious manner. He was carrying a waterproof case and wearing a CETI T-shirt. Soon, several more members of the team showed up, also carrying waterproof cases and wearing CETI T-shirts. We climbed aboard an oversized Zodiac called CETI 2 and set off.

The night before, a tropical storm had raked the region with gusty winds and heavy rain, and Dominica's volcanic peaks were still wreathed in clouds. The sea was a series of white-fringed swells. CETI 2 sped along, thumping up and down, up and down. Occasionally, flying fish zipped by; these remained aloft for such a long time that I was convinced for a while they were birds.

About two miles offshore, the captain, Kevin George, killed the engines. A graduate student named Yaly Mevorach put on a set of headphones and lowered an underwater mike—a hydrophone—into the waves. She listened for a bit and then, smiling, handed the headphones to me.

The most famous whale calls are the long, melancholy "songs" issued by humpbacks. Sperm-whale codas are neither mournful nor musical. Some people compare them to the sound of bacon frying, others to popcorn popping. That morning, as I listened through the headphones, I thought of horses clomping over cobbled streets. Then I changed my mind. The clatter was more mechanical, as if somewhere deep beneath the waves someone was pecking out a memo on a manual typewriter.

Mevorach unplugged the headphones from the mike, then plugged them into a contraption that looked like a car speaker riding a broom handle. The contraption, which I later learned had been jury-rigged out of, among other elements, a metal salad bowl, was designed to locate clicking whales. After twisting it around in the water for a while, Mevorach decided that the clicks were coming from the southwest. We thumped in that direction, and soon George called out, "Blow!"

A few hundred yards in front of us was a gray ridge that looked like a misshapen log. (When whales are resting at the surface, only a fraction of their enormous bulk is visible.) The whale blew again, and a geyser-like spray erupted from the ridge's left side.

As we were closing in, the whale blew yet again; then it raised its elegantly curved flukes into the air and dove. It was unlikely to resurface, I was told, for nearly an hour.

We thumped off in search of its kin. The farther south we travelled, the higher the swells. At one point, I felt my stomach lurch and went to the side of the boat to heave.

"I like to just throw up and get back to work," Mevorach told me.

Trying to attach a recording device to a sperm whale is a bit like trying to joust while racing on a Jet Ski. The exercise entails using a thirty-foot pole to stick the device onto the animal's back, which in turn entails getting within thirty feet of a creature the size of a school bus. That day, several more whales were spotted. But, for all of our thumping around, CETI 2 never got close enough to one to unhitch the tagging pole.

The next day, the sea was calmer. Once again, we spotted whales, and several times the boat's designated pole-handler, Odel Harve, attempted to tag one. All his efforts went for naught. Either the whale dove at the last minute or the recording device slipped off the whale's back and had to be fished out of the water. (The device, which was about a foot long and shaped like a surfboard, was supposed to adhere via suction cups.) With each new sighting, the mood on CETI 2 lifted; with each new failure, it sank.

On my third day in Dominica, I joined a slightly different subset of the team on a different boat to try out a new approach. Instead of a long pole, this boat—a forty-foot catamaran called CETI 1—was carrying an experimental drone. The drone had been specially designed at Harvard and was fitted out with a video camera and a plastic claw.

Because sperm whales are always on the move, there's no guarantee of finding any; weeks can go by without a single sighting off Dominica. Once again, though, we got lucky, and a whale was soon spotted. Stefano Pagani, an undergraduate who had been brought along for his piloting skills, pulled on what looked like a V.R. headset, which was linked to the drone's video camera. In this way, he could look down at the whale from the drone's perspective and, it was hoped, plant a recording device, which had been loaded into the claw, on the whale's back.

The drone took off and zipped toward the whale. It hovered for a few seconds, then dropped vertiginously. For the suction cups to adhere, the drone

"This is the exact moment I asked you to water my plant."

had to strike the whale at just the right angle, with just the right amount of force. Post impact, Pagani piloted the craft back to the boat with trembling hands. "The nerves get to you," he said.

"No pressure," Gruber joked. "It's not like there's a *New Yorker* reporter watching or anything." Someone asked for a round of applause. A cheer went up from the boat. The whale, for its part, seemed oblivious. It lolled around with the recording device, which was painted bright orange, stuck to its dark-gray skin. Then it dove.

Sperm whales are among the world's deepest divers. They routinely descend two thousand feet and sometimes more than a mile. (The deepest a human has ever gone with scuba gear is just shy of eleven hundred feet.) If the device stayed on, it would record any sounds the whale made on its travels. It would also log the whale's route, its heartbeat, and its orientation in the water. The suction was supposed to last around eight hours; after that—assuming all went according to plan—the device would come loose, bob to the surface, and transmit a radio signal that would allow it to be retrieved.

I said it was too bad we couldn't yet understand what the whales were saying, because perhaps this one, before she dove, had clicked out where she was headed.

"Come back in two years," Gruber said.

Every sperm whale's tail is unique. On some, the flukes are divided by a deep notch. On others, they meet almost in a straight line. Some flukes end in points; some are more rounded. Many are missing distinctive chunks, owing, presumably, to orca attacks. To I.D. a whale in the field, researchers usually rely on a photographic database called Flukebook. One of the very few scientists who can do it simply by sight is CETI's lead field biologist, Shane Gero.

Gero, who is forty-three, is tall and broad, with an eager smile and a pronounced Canadian accent. A scientist-in-residence at Ottawa's Carleton University, he has been studying the whales off Dominica since 2005. By now, he knows them so well that he can relate their triumphs and travails, as well as who gave birth to whom and when. A decade ago, as Gero started having children of his own, he began referring to his "human family" and his "whale family." (His human family lives in Ontario.) Another marine biologist once described Gero as sounding "like Captain Ahab after twenty years of psychotherapy."

When Gruber approached Gero about joining Project CETI, he was, initially, suspicious. "I get a lot of e-mails like 'Hey, I think whales have crystals in their heads,' and 'Maybe we can use them to cure malaria,'" Gero told me. "The first e-mail David sent me was, like, 'Hi, I think we could find some funding to translate whale.' And I was, like, 'Oh, boy.'"

A few months later, the two men met in person, in Washington, D.C., and hit it off. Two years after that, Gruber did find some funding. CETI received thirty-three million dollars from the Audacious Project, a philanthropic collaborative whose backers include Richard Branson and Ray Dalio. (The grant, which was divided into five annual payments, will run out in 2025.)

The whole time I was in Dominica, Gero was there as well, supervising graduate students and helping with the tagging effort. From him, I learned that the first whale I had seen was named Rita and that the whales that had subsequently been spotted included Raucous, Roger, and Rita's daughter, Rema. All belonged to a group called Unit R, which Gero characterized as "tightly and actively social." Apparently, Unit R is also warmhearted. Several years ago, when a group called Unit S got whittled down to just two members—Sally and TBB—the Rs adopted them.

Sperm whales have the biggest brains on the planet—six times the size of humans'. Their social lives are rich, complicated, and, some would say, ideal. The adult members of a unit, which may consist of anywhere from a few to a few dozen individuals, are all female. Male offspring are permitted to travel with the group until they're around fifteen years old; then, as Gero put it, they are "socially ostracized." Some continue to hang around their mothers and sisters, clicking away for months unanswered. Eventually, though, they get the message. Fully grown males are solitary creatures. They approach a band of females—presumably not their immediate relatives—only in order to mate. To signal their arrival, they issue deep, booming sounds known as clangs. No one knows exactly what makes a courting sperm whale attractive to a potential mate; Gero told me that he had seen some clanging males greeted with great commotion and others with the cetacean equivalent of a shrug.

Female sperm whales, meanwhile, are exceptionally close. The adults in a unit not only travel and hunt together; they also appear to confer on major decisions. If there's a new mother in the group, the other members mind the calf while she dives for food. In some units, though not in Unit R, sperm whales even suckle one another's young. When a family is threatened, the adults cluster together to protect their offspring, and when things are calm the calves fool around.

"It's like my kids and their cousins," Gero said.

The day after I watched the successful drone flight, I went out with Gero to try to recover the recording device. More than twenty-four hours had passed, and it still hadn't been located. Gero decided to drive out along a peninsula called Scotts Head, at the southwestern tip of Dominica, where he thought he might be able to pick up the radio signal. As we wound around on the island's treacherously narrow roads, he described to me an idea he had for a children's book that, read in one direction, would recount a story about a human family that lives on a boat and looks down at the water and, read from the other direction, would be about a whale family that lives deep beneath the boat and looks up at the waves.

"For me, the most rewarding part about spending a lot of time in the culture of whales is finding these fundamental similarities, these fundamental patterns," he said. "And, you know, sure, they won't have a word for 'tree.' And there's some part of the sperm-whale experience that our primate brain just won't understand. But those things that

we share must be fundamentally important to why we're here."

After a while, we reached, quite literally, the end of the road. Beyond that was a hill that had to be climbed on foot. Gero was carrying a portable antenna, which he unfolded when we got to the top. If the recording unit had surfaced anywhere within twenty miles, Gero calculated, we should be able to detect the signal. It occurred to me that we were now trying to listen for a listening device. Gero held the antenna aloft and put his ear to some kind of receiver. He didn't hear anything, so, after admiring the view for a bit, we headed back down. Gero was hopeful that the device would eventually be recovered. But, as far as I know, it is still out there somewhere, adrift in the Caribbean.

The first scientific, or semi-scientific, study of sperm whales was a pamphlet published in 1835 by a Scottish ship doctor named Thomas Beale. Called "The Natural History of the Sperm Whale," it proved so popular that Beale expanded the pamphlet into a book, which was issued under the same title four years later.

At the time, sperm-whale hunting was a major industry, both in Britain and in the United States. The animals were particularly prized for their spermaceti, the waxy oil that fills their gigantic heads. Spermaceti is an excellent lubricant, and, burned in a lamp, produces a clean, bright light; in Beale's day, it could sell for five times as much as ordinary whale oil. (It is the resemblance between semen and spermaceti that accounts for the species' embarrassing name.)

Beale believed sperm whales to be silent. "It is well known among the most experienced whalers that they never produce any nasal or vocal sounds whatever, except a trifling hissing at the time of the expiration of the spout," he wrote. The whales, he said, were also gentle—"a most timid and inoffensive animal." Melville relied heavily on Beale in composing "Moby-Dick." (His personal copy of "The Natural History of the Sperm Whale" is now housed in Harvard's Houghton Library.) He attributed to sperm whales a "pyramidical silence."

"The whale has no voice," Melville wrote. "But then again," he went on, "what has the whale to say? Seldom have I known any profound being that had anything to say to this world, unless forced to stammer out something by way of getting a living."

The silence of the sperm whales went unchallenged until 1957. That year, two researchers from the Woods Hole Oceanographic Institution picked up sounds from a group they'd encountered off the coast of North Carolina. They detected strings of "sharp clicks," and speculated that these were made for the purpose of echolocation. Twenty years elapsed before one of the researchers, along with a different colleague from Woods Hole, determined that some sperm-whale clicks were issued in distinctive, often repeated patterns, which the pair dubbed "codas." Codas seemed to be exchanged between whales and so, they reasoned, must serve some communicative function.

Since then, cetologists have spent thousands of hours listening to codas, trying to figure out what that function might be. Gero, who wrote his Ph.D. thesis on vocal communication between sperm whales, told me that one of the "universal truths" about codas is their timing. There are always four seconds between the start of one coda and the beginning of the next. Roughly two of those seconds are given over to clicks; the rest is silence. Only after the pause, which may or may not be analogous to the pause a human speaker would put between words, does the clicking resume.

Codas are clearly learned or, to use the term of art, socially transmitted. Whales in the eastern Pacific exchange one set of codas, those in the eastern Caribbean another, and those in the South Atlantic yet another. Baby sperm whales pick up the codas exchanged by their relatives, and before they can click them out proficiently they "babble."

The whales around Dominica have a repertoire of around twenty-five codas. These codas differ from one another in the number of their clicks and also in their rhythms. The coda known as three regular, or 3R, for example, consists of three clicks issued at equal intervals. The coda 7R consists of seven evenly spaced clicks. In seven increasing, or 7I, by contrast, the interval between the clicks grows longer; it's about five-hundredths of a second between the first two clicks, and between the last two it's twice that long. In four decreasing, or 4D, there's a fifth of a second between the first two clicks and only a tenth of a second between the last two. Then, there are syncopated codas. The coda most frequently issued by members of Unit R, which has been dubbed 1+1+3, has a cha-cha-esque rhythm and might be rendered in English as click . . . click . . . click-click-click.

If codas are in any way comparable to words, a repertoire of twenty-five represents a pretty limited vocabulary. But, just as no one can yet say what, if anything, codas mean to sperm whales, no one can say exactly what features are significant to them. It may be that there are nuances in, say, pacing or pitch that have so far escaped human detection. Already, CETI team members have identified a new kind of signal—a single click—that may serve as some kind of punctuation mark.

When whales are resting near the surface, their exchanges can last an hour or more. Even by human standards, sperm-whale chatter is insistent and repetitive. "They're talking on top of each other all the time," Gero told me.

A snatch of dialogue recorded between two members of Unit R runs as follows. (Both Roger and Rita are adult females.)

Roger: 1+1+3
Rita: 1+1+3, 1+1+3
Roger: 9I
Rita: 1+1+3
Roger: 10I
Rita: 1+1+3, 1+1+3
Roger: 11I
Rita: 1+1+3
Roger: 10I, 11I, 1+1+3
Rita: 1+1+3

The "conversation" continues along much these same lines, until Rita finally changes her tune:

Rita: 1+1+3
Roger: 12R, 10I, 10I, 9I, 9I
Rita: 9I, 8I

Not long ago, suffering from writer's block, I asked ChatGPT if it could rewrite "Moby-Dick" from the whale's perspective. The chatbot began modestly. "As an A.I. language model, I can certainly attempt to rewrite a small excerpt," it told me. Then it launched into what it titled "Moby-Dick—The White Leviathan's Tale."

In Moby-Dick's "Moby-Dick," the

plot turned on an unfortunate case of mistaken identity. Some other whale had gnawed off Ahab's leg; the white whale was as innocent as the driven snow.

"My heart was one of peace, my spirit one with the rhythm of the currents," ChatGPT wrote:

> I knew not of the vendetta forming against me, for I was but a creature of instinct, a guardian of the seas. But Captain Ahab's thirst for vengeance loomed large, and I became the object of his undying rage. The scar he bore from a previous encounter with my kind had branded me as his ultimate adversary. In his eyes, I represented a force of nature that defied his understanding, a living enigma of the ocean's might.

In paragraph seven, I was surprised—and excited—to see the whale/bot allude to the problem of interspecies communication:

> Deep within the abyss of the sea, I pondered the futility of the captain's quest. I longed to communicate with him, to show him that my kind, too, had emotions and families to protect. But the language barrier between our worlds remained an insurmountable chasm.

As anyone who has been conscious for the past ten months knows, ChatGPT is capable of amazing feats. It can write essays, compose sonnets, explain scientific concepts, and produce jokes (though these last are not necessarily funny). If you ask ChatGPT how it was created, it will tell you that first it was trained on a "massive corpus" of data from the Internet. This phase consisted of what's called "unsupervised machine learning," which was performed by an intricate array of processing nodes known as a neural network. Basically, the "learning" involved filling in the blanks; according to ChatGPT, the exercise entailed "predicting the next word in a sentence given the context of the previous words." By digesting millions of Web pages—and calculating and recalculating the odds—ChatGPT got so good at this guessing game that, without ever understanding English, it mastered the language. (Other languages it is "fluent" in include Chinese, Spanish, and French.)

In theory at least, what goes for English (and Chinese and French) also goes for sperm whale. Provided that a computer model can be trained on enough data, it should be able to master coda prediction. It could then—once again in theory—generate sequences of codas that a sperm whale would find convincing.

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The model wouldn't understand sperm whale-ese, but it could, in a manner of speaking, speak it. Call it ClickGPT.

Currently, the largest collection of sperm-whale codas is an archive assembled by Gero in his years on and off Dominica. The codas contain roughly a hundred thousand clicks. In a paper published last year, members of the CETI team estimated that, to fulfill its goals, the project would need to assemble some four billion clicks, which is to say, a collection roughly forty thousand times larger than Gero's.

"One of the key challenges toward the analysis of sperm whale (and more broadly, animal) communication using modern deep learning techniques is the need for sizable datasets," the team wrote.

In addition to bugging individual whales, CETI is planning to tether a series of three "listening stations" to the floor of the Caribbean Sea. The stations should be able to capture the codas of whales chatting up to twelve miles from shore. (Though inaudible above the waves, sperm-whale clicks can register up to two hundred and thirty decibels, which is louder than a gunshot or a rock concert.) The information gathered by the stations will be less detailed than what the tags can provide, but it should be much more plentiful.

One afternoon, I drove with Gruber and CETI's station manager, Yaniv Aluma, a former Israeli Navy SEAL, to the port in Roseau, where pieces of the listening stations were being stored. The pieces were shaped like giant sink plugs and painted bright yellow. Gruber explained that the yellow plugs were buoys, and that the listening equipment—essentially, large collections of hydrophones—would dangle from the

bottom of the buoys, on cables. The cables would be weighed down with old train wheels, which would anchor them to the seabed. A stack of wheels, rusted orange, stood nearby. Gruber suddenly turned to Aluma and, pointing to the pile, said, "You know, we're going to need more of these." Aluma nodded glumly.

The listening stations have been the source of nearly a year's worth of delays for CETI. The first was installed last summer, in water six thousand feet deep. Fish were attracted to the buoy, so the spot soon became popular among fishermen. After about a month, the fishermen noticed that the buoy was gone. Members of CETI's Dominica-based staff set out in the middle of the night on CETI 1 to try to retrieve it. By the time they reached the buoy, it had drifted almost thirty miles offshore. Meanwhile, the hydrophone array, attached to the rusty train wheels, had dropped to the bottom of the sea.

The trouble was soon traced to the cable, which had been manufactured in Texas by a company that specializes in offshore oil-rig equipment. "They deal with infrastructure that's very solid," Aluma explained. "But a buoy has its own life. And they didn't calculate so well the torque or load on different motions—twisting and moving sideways." The company spent months figuring out why the cable had failed and finally thought it had solved the problem. In June, Aluma flew to Houston to watch a new cable go through stress tests. In the middle of the tests, the new design failed. To avoid further delays, the CETI team reconfigured the stations. One of the reconfigured units was installed late last month. If it doesn't float off, or in some other way malfunction, the plan is to get the two others in the water sometime this fall.

A sperm whale's head takes up nearly a third of its body; its narrow lower jaw seems borrowed from a different animal entirely; and its flippers are so small as to be almost dainty. (The formal name for the species is *Physeter macrocephalus*, which translates roughly as "big-headed blowhole.") "From just about any angle," Hal Whitehead, one of the world's leading sperm-whale experts (and Gero's thesis adviser), has written, sperm whales appear "very strange." I wanted to see more of these strange-looking creatures than was visible from a catamaran, and so, on my last day in Dominica, I considered going on a commercial tour that offered customers a chance to swim with whales, assuming that any could be located. In the end—partly because I sensed that Gruber disapproved of the practice—I dropped the idea.

Instead, I joined the crew on CETI 1 for what was supposed to be another round of drone tagging. After we'd been under way for about two hours, codas were picked up, to the northeast. We headed in that direction and soon came upon an extraordinary sight. There were at least ten whales right off the boat's starboard. They were all facing the same direction, and they were bunched tightly together, in rows. Gero identified them as members of Unit A. The members of Unit A were originally named for characters in Margaret Atwood novels, and they include Lady Oracle, Aurora, and Rounder, Lady Oracle's daughter.

Earlier that day, the crew on CETI 2 had spotted pilot whales, or blackfish, which are known to harass sperm whales. "This looks very defensive," Gero said, referring to the formation.

Suddenly, someone yelled out, "Red!" A burst of scarlet spread through the water, like a great banner unfurling. No one knew what was going on. Had the pilot whales stealthily attacked? Was one of the whales in the group injured? The crowding increased until the whales were practically on top of one another.

Then a new head appeared among them. "Holy fucking shit!" Gruber exclaimed.

"Oh, my God!" Gero cried. He ran to the front of the boat, clutching his hair in amazement. "Oh, my God! Oh, my God!" The head belonged to a newborn calf, which was about twelve feet long and weighed maybe a ton. In all his years of studying sperm whales, Gero had never watched one being born. He wasn't sure anyone ever had.

As one, the whales made a turn toward the catamaran. They were so close I got a view of their huge, eerily faceless heads and pink lower jaws. They seemed oblivious of the boat, which was now in their way. One knocked into the hull, and the foredeck shuddered.

The adults kept pushing the calf around. Its mother and her relatives pressed in so close that the baby was al-

THE ENDLESSNESS

At first I was lonely, but then I was
curious. The original fault was that I could
not see the lines of things. My mother could.
She could see shapes and lines and shadows,
but all I could see was memory, what had been
done to the object before it was placed on
the coffee table or the nightstand. I could sense
that it had a life underneath it. Because
of this, I thought I was perhaps bad at seeing. Even
color was not color, but a mood. The lamp was
sullen, a candlestick brooding and rude with its old
wax crumbling at its edges, not flame, not a promise
of flame. How was I supposed to feel then? About
moving in the world? How could I touch anything
or anyone without the weight of all of time shifting
through us? I was not, or I did not think I was, making
up stories; it was how the world was, or rather it is how
the world is. I've only now become better at pretending
that there are edges, boundaries, that if I touch
something it cannot always touch me back.

—Ada Limón

most lifted out of the water. Gero began to wonder whether something had gone wrong. By now, everyone, including the captain, had gathered on the bow. Pagani and another undergraduate, Aidan Kenny, had launched two drones and were filming the action from the air. Mevorach, meanwhile, was recording the whales through a hydrophone.

To everyone's relief, the baby began to swim on its own. Then the pilot whales showed up—dozens of them.

"I don't like the way they're moving," Gruber said.

"They're going to attack for sure," Gero said. The pilot whales' distinctive, wave-shaped fins slipped in and out of the water.

What followed was something out of a marine-mammal "Lord of the Rings." Several of the pilot whales stole in among the sperm whales. All that could be seen from the boat was a great deal of thrashing around. Out of nowhere, more than forty Fraser's dolphins arrived on the scene. Had they come to participate in the melee or just to rubberneck? It was impossible to tell. They were smaller and thinner than the pilot whales (which, their name notwithstanding, are also technically dolphins).

"I have no prior knowledge upon which to predict what happens next," Gero announced. After several minutes, the pilot whales retreated. The dolphins curled through the waves. The whales remained bunched together. Calm reigned. Then the pilot whales made another run at the sperm whales. The water bubbled and churned.

"The pilot whales are just being pilot whales," Gero observed. Clearly, though, in the great "struggle for existence," everyone on board CETI 1 was on the side of the baby.

The skirmishing continued. The pilot whales retreated, then closed in again. The drones began to run out of power. Pagani and Kenny piloted them back to the catamaran to exchange the batteries. These were so hot they had to be put in the boat's refrigerator. At one point, Gero thought that he spied the new calf, still alive and well. (He would later, from the drone footage, identify the baby's mother as Rounder.) "So that's good news," he called out.

The pilot whales hung around for more than two hours. Then, all at once, they were gone. The dolphins, too, swam off.

"There will never be a day like this again," Gero said as CETI 1 headed back to shore.

That evening, everyone who'd been on board CETI 1 and CETI 2 gathered at a dockside restaurant for a dinner in honor of the new calf. Gruber made a toast. He thanked the team for all its hard work. "Let's hope we can learn the language with that baby whale," he said.

I was sitting with Gruber and Gero at the end of a long table. In between drinks, Gruber suggested that what we had witnessed might not have been an attack. The scene, he proposed, had been more like the last act of "The Lion King," when the beasts of the jungle gather to welcome the new cub.

"Three different marine mammals came together to celebrate and protect the birth of an animal with a sixteen-month gestation period," he said. Perhaps, he hypothesized, this was a survival tactic that had evolved to protect mammalian young against sharks, which would have been attracted by so much blood and which, he pointed out, would have been much more numerous before humans began killing them off.

"You mean the baby whale was being protected by the pilot whales from the sharks that aren't here?" Gero asked. He said he didn't even know what it would mean to test such a theory. Gruber said they could look at the drone footage

and see if the sperm whales had ever let the pilot whales near the newborn and, if so, how the pilot whales had responded. I couldn't tell whether he was kidding or not.

"That's a nice story," Mevorach interjected.

"I just like to throw ideas out there," Gruber said.

"My! You don't say so!" said the Doctor. "You never talked that way to me before."

"What would have been the good?" said Polynesia, dusting some cracker crumbs off her left wing. "You wouldn't have understood me if I had."

—*"The Story of Doctor Dolittle."*

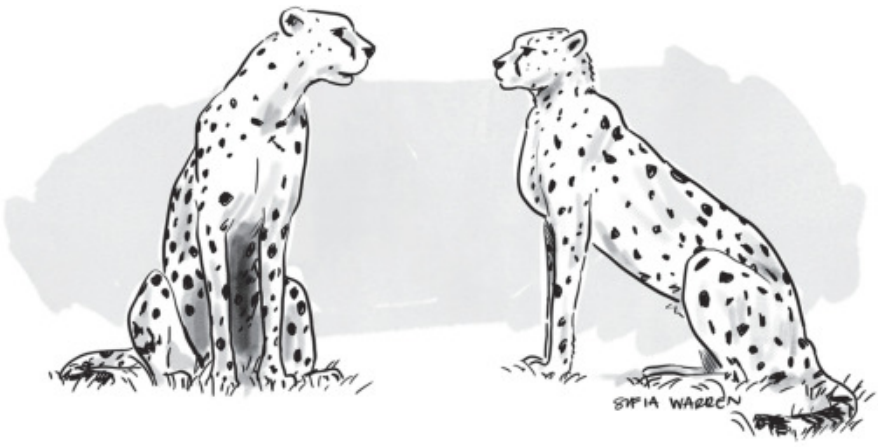
The Computer Science and Artificial Intelligence Laboratory (CSAIL), at M.I.T., occupies a Frank Gehry-designed building that appears perpetually on the verge of collapse. Some wings tilt at odd angles; others seem about to split in two. In the lobby of the building, there's a vending machine that sells electrical cords and another that dispenses caffeinated beverages from around the world. There's also a yellow sign of the sort you might see in front of an elementary school. It shows a figure wearing a backpack and carrying a briefcase and says "NERD XING."

Daniela Rus, who runs CSAIL (pronounced "see-sale"), is a roboticist. "There's such a crazy conversation these days about machines," she told me. We were sitting in her office, which is dominated by a robot, named Domo, who sits in a glass case. Domo has a metal torso and oversized, goggly eyes. "It's either machines are going to take us down or machines are going to solve all of our problems. And neither is correct."

Along with several other researchers at CSAIL, Rus has been thinking about how CETI might eventually push beyond coda prediction to something approaching coda comprehension. This is a formidable challenge. Whales in a unit often chatter before they dive. But what are they chattering about? How deep to go, or who should mind the calves, or something that has no analogue in human experience?

"We are trying to correlate behavior with vocalization," Rus told me. "Then we can begin to get evidence for the meaning of some of the vocalizations they make."

She took me down to her lab, where several graduate students were tinkering in a thicket of electronic equipment. In one corner was a transparent plastic tube loaded with circuitry, attached to two white plastic flippers. The setup, Rus explained, was the skeleton of a robotic turtle. Lying on the ground was the turtle's plastic shell. One of the students hit a switch and the flippers made a paddling motion. Another student brought out a two-foot-long robotic



"But with traffic I rarely make it past twenty miles per hour."

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fish. Both the fish and the turtle could be configured to carry all sorts of sensors, including underwater cameras.

"We need new methods for collecting data," Rus said. "We need ways to get close to the whales, and so we've been talking a lot about putting the sea turtle or the fish in water next to the whales, so that we can image what we cannot see."

CSAIL is an enormous operation, with more than fifteen hundred staff members and students. "People here are kind of audacious," Rus said. "They really love the wild and crazy ideas that make a difference." She told me about a diver she had met who had swum with the sperm whales off Dominica and, by his account at least, had befriended one. The whale seemed to like to imitate the diver; for example, when he hung in the water vertically, it did, too.

"The question I've been asking myself is: Suppose that we set up experiments where we engage the whales in physical mimicry," Rus said. "Can we then get them to vocalize while doing a motion? So, can we get them to say, 'I'm going up'? Or can we get them to say, 'I'm hovering'? I think that, if we were to find a few snippets of vocalizations that we could associate with some meaning, that would help us get deeper into their conversational structure."

While we were talking, another CSAIL professor and CETI collaborator, Jacob Andreas, showed up. Andreas, a computer scientist who works on language processing, said that he had been introduced to the whale project at a faculty retreat. "I gave a talk about understanding neural networks as a weird translation problem," he recalled. "And Daniela came up to me afterwards and she said, 'Oh, you like weird translation problems? Here's a weird translation problem.'"

Andreas told me that CETI had already made significant strides, just by reanalyzing Gero's archive. Not only had the team uncovered the new kind of signal but also it had found that codas have much more internal structure than had previously been recognized. "The amount of information that this system can carry is much bigger," he said.

"The holy grail here—the thing that separates human language from all other animal communication systems—is what's called 'duality of patterning,'" Andreas went on. "Duality of patterning" refers to the way that meaningless units—in English, sounds like "sp" or "ot"—can be combined to form meaningful units, like "spot." If, as is suspected, clicks are empty of significance but codas refer to something, then sperm whales, too, would have arrived at duality of patterning. "Based on what we know about how the coda inventory works, I'm optimistic—though still not sure—that this is going to be something that we find in sperm whales," Andreas said.

The question of whether any species possesses a "communication system" comparable to that of humans is an open and much debated one. In the nineteen-fifties, the behaviorist B. F. Skinner argued that children learn language through positive reinforcement; therefore, other animals should be able to do the same. The linguist Noam Chomsky had a different view. He dismissed the notion that kids acquire language via conditioning, and also the possibility that language was available to other species.

In the early nineteen-seventies, a student of Skinner's, Herbert Terrace, set out to confirm his mentor's theory. Terrace, at that point a professor of psychology at Columbia, adopted a chimpanzee, whom he named, tauntingly, Nim Chimpsky. From the age of two weeks, Nim was raised by people and taught American Sign Language. Nim's interactions with his caregivers were videotaped, so that Terrace would have an objective record of the chimp's progress. By the time Nim was three years old, he had a repertoire of eighty signs and, significantly, often produced them in sequences, such as "banana me eat banana" or "tickle me Nim play." Terrace set out to write a book about how Nim had crossed the language barrier and, in so doing, made a monkey of his namesake. But then Terrace double-checked some details of his account against the tapes. When he looked carefully at the videos, he was appalled. Nim hadn't really learned A.S.L.; he had just learned to imitate the last signs his teachers had made to him.

"The very tapes I planned to use to document Nim's ability to sign provided decisive evidence that I had vastly overestimated his linguistic competence," Terrace wrote.

Since Nim, many further efforts have been made to prove that different species—orangutans, bonobos, parrots, dolphins—have a capacity for language. Several of the animals who were the focus of these efforts—Koko the gorilla, Alex the gray parrot—became international celebrities. But most linguists still believe that the only species that possesses language is our own.

Language is "a uniquely human faculty" that is "part of the biological nature of our species," Stephen R. Anderson, a professor emeritus at Yale and a former president of the Linguistic Society of America, writes in his book "Doctor Dolittle's Delusion."

Whether sperm-whale codas could challenge this belief is an issue that just

about everyone I talked to on the CETI team said they'd rather not talk about.

"Linguists like Chomsky are very opinionated," Michael Bronstein, the Oxford professor, told me. "For a computer scientist, usually a language is some formal system, and often we talk about artificial languages." Sperm-whale codas "might not be as expressive as human language," he continued. "But I think whether to call it 'language' or not is more of a formal question."

"Ironically, it's a semantic debate about the meaning of language," Gero observed.

Of course, the advent of ChatGPT further complicates the debate. Once a set of algorithms can rewrite a novel, what counts as "linguistic competence"? And who—or what—gets to decide?

"When we say that we're going to succeed in translating whale communication, what do we mean?" Shafi Goldwasser, the Radcliffe Institute fellow who first proposed the idea that led to CETI, asked.

"Everybody's talking these days about these generative A.I. models like ChatGPT," Goldwasser, who now directs the Simons Institute for the Theory of Computing, at the University of California, Berkeley, went on. "What are they doing? You are giving them questions or prompts, and then they give you answers, and the way that they do that is by predicting how to complete sentences or what the next word would be. So you could say that's a goal for CETI—that you don't necessarily understand what the whales are saying, but that you could predict it with good success. And, therefore, you could maybe generate a conversation that would be understood by a whale, but maybe you don't understand it. So that's kind of a weird success."

Prediction, Goldwasser said, would mean "we've realized what the pattern of their speech is. It's not satisfactory, but it's something.

"What about the goal of understanding?" she added. "Even on that, I am not a pessimist."

There are now an estimated eight hundred and fifty thousand sperm whales diving the world's oceans. This is down from an estimated two million in the days before the species was commercially hunted. It's often suggested that the darkest period for *P. macrocephalus* was the middle of the nineteenth century, when Melville shipped out of New Bedford on the Acushnet. In fact, the bulk of the slaughter took place in the middle of the twentieth century, when sperm whales were pursued by diesel-powered ships the size of factories. In the eighteen-forties, at the height of open-boat whaling, some five thousand sperm whales were killed each year; in the nineteen-sixties, the number was six times as high. Sperm whales were boiled down to make margarine, cattle feed, and glue. As recently as the nineteen-seventies, General Motors used spermaceti in its transmission fluid.

Near the peak of industrial whaling, a biologist named Roger Payne heard a radio report that changed his life and, with it, the lives of the world's remaining cetaceans. The report noted that a whale had washed up on a beach not far from where Payne was working, at Tufts University. Payne, who'd been researching moths, drove out to see it. He was so moved by the dead animal that he switched the focus of his research. His investigations led him to a naval engineer who, while listening for Soviet submarines, had recorded eerie underwater sounds that he attributed to humpback whales. Payne spent years studying the recordings; the sounds, he decided, were so beautiful and so intricately constructed that they deserved to be called "songs." In 1970, he arranged to have "Songs of the Humpback Whale" released as an LP.

"I just thought: the world has to hear this," he would later recall. The album sold briskly, was sampled by popular musicians like Judy Collins, and helped launch the "Save the Whales" movement. In 1979, *National Geographic* issued a "flexi disc" version of the songs, which it distributed as an insert in more than ten million copies of the magazine. Three years later, the International Whaling Commission declared a "moratorium" on commercial hunts which remains in effect today. The move is credited with having rescued several species, including humpbacks and fin whales, from extinction.

Payne, who died in June at the age of eighty-eight, was an early and ardent member of the CETI team. (This was the case, Gruber told me, even though he was disappointed that the project was focussing on sperm whales, rather than on humpbacks, which, he maintained, were more intelligent.) Just a few days before his death, Payne published an op-ed piece explaining why he thought CETI was so important.

Whales, along with just about every other creature on Earth, are now facing grave new threats, he observed, among them climate change. How to motivate "ourselves and our fellow humans" to combat these threats?

"Inspiration is the key," Payne wrote. "If we could communicate with animals, ask them questions and receive answers—no matter how simple those questions and answers might turn out to be—the world might soon be moved enough to at least start the process of halting our runaway destruction of life."

Several other CETI team members made a similar point. "One important thing that I hope will be an outcome of this project has to do with how we see life on land and in the oceans," Bronstein said. "If we understand—or we have evidence, and very clear evidence in the form of language-like communication—that intelligent creatures are living there and that we are destroying them, that could change the way that we approach our Earth."

"I always look to Roger's work as a guiding star," Gruber told me. "The way that he promoted the songs and did the science led to an environmental movement that saved whale species from extinction. And he thought that CETI could be much more impactful. If we could understand what they're saying, instead of 'save the whales' it will be 'saved by the whales.'

"This project is kind of an offering," he went on. "Can technology draw us closer to nature? Can we use all this amazing tech we've invented for positive purposes?"

ChatGPT shares this hope. Or at least the A.I.-powered language model is shrewd enough to articulate it. In the version of "Moby-Dick" written by algorithms in the voice of a whale, the story ends with a somewhat ponderous but not unaffecting plea for mutuality:

> I, the White Leviathan, could only wonder if there would ever come a day when man and whale would understand each other, finding harmony in the vastness of the ocean's embrace. ♦

SIBERIAN WOOD

Lara Vapnyar

ILLUSTRATION BY KEVIN LUCBERT

The thing about horseradish vodka is that it makes you forget that you're drinking vodka. The greenish color and the smell of hay bring to mind the kind of herbal infusions you'd get at a spa, and the taste is so sharp and bracing that it feels like an energy drink. Yes, an energy drink! You feel strong and vigorous as you down one shot after another. You're delighted with everyone, but most of all with yourself, your witty, charming, quirky self, and you believe that everyone else is just as impressed by you as you are, until you suddenly realize that you're so drunk you can't fully control yourself—your movements, or your words, or that crazy laughter that makes your mouth twist and your eyes water—and your whole body convulses and you splash the drink all over your plate, your knees, and your chest. And then you realize that this isn't that big a party, that there are only five seemingly respectable middle-aged adults at the table in this neat Upper West Side apartment, that your husband, Mark, is staring at you in horror, and that his friend Sergey is red in the face, because your charming, witty self has been mocking and abusing him for the past two hours. The hosts are trying their best to look away, even though they are almost as drunk as you are.

The only remedy for this is, of course, more horseradish vodka, but God help you if you find that the bottle is empty.

"Are we all out?" Helena asked, taking the empty bottle from me and shaking it with great force, as if shaking could magically refill it.

"There's more," Alex said. "I'll pop it into the freezer." His voice was muffled, because his face was buried in the fur of the large gray cat he'd been cradling for most of the evening. Alex had recently shaved his beard, and I wondered if he felt drawn to the cat's fur because he missed his own.

A different cat, skinny and black, sprang up onto Helena's lap. There was also a third cat somewhere, but that one preferred to bide his time hidden under one of their pieces of elegant furniture.

"Please don't think that we're crazy cat people. They were my uncle's cats," Helena explained. "My uncle and aunt died within a few days of each other. My aunt was the first to go. We were helping my uncle with the funeral arrangements when he suddenly stopped answering our messages. Turns out he'd died, too! Can you imagine that?"

We could imagine that, but we didn't want to, so what followed was an uneasy silence.

I noticed a few remaining drops of vodka at the bottom of Mark's shot glass, and lunged for it. Mark gave me a warning look. He sat across the table from me, but he looked as if he were far away, planets away from me. But then I often felt that when we were in the company of other people. Feeling this way terrified me, because it made me think that the profound intimacy we enjoyed at home was just an illusion that evaporated as soon as we ventured outside, and in the absence of that intimacy we couldn't feel independent or self-sufficient but were, instead, broken and outcast, uncomfortable and unprotected.

To quell my panic, I raised Mark's shot glass and held it over my face until those last drops of vodka had rolled into my open mouth.

Sergey was sitting next to me. I could see him through the thick glass. He was taller and thinner than anyone else at the dinner party. His face was still red, his glasses fogged over, his very long legs awkwardly folded under the table. He looked exactly as uncomfortable and unprotected as my fear suggested that a person in the absence of love would look. He'd been looking that way ever since Daria had disappeared.

I turned away from him, my eyes falling on the open notebook in the middle of the table, splotched with oil and barely legible writing. The handwriting was Helena's, but the ideas were mostly Mark's and mine.

The goal of this gathering was to help Sergey create a YouTube channel, on which he would deliver lectures on art. Back in Russia, Sergey had been an art historian, a true fanatic of art, his passion being sculpture, particularly wooden sculpture. He'd enjoyed travelling to faraway places, searching for ancient artifacts, often in the company of devoted students, writing, teaching, giving talks. YouTube was different, though. Sergey wasn't sure that he had enough charisma for the screen. His new girlfriend, Federica, thought that his charisma was just fine: he had a comforting, nonthreatening presence; all he needed to do was to overcome his insecurity and learn to sell himself.

It was Federica's idea to enlist us to help. After all, Mark and I were journalists, and Alex and Helena owned a successful branding company. She was sure that the four of us would have the perfect combination of skills to figure out how to sell Sergey. Federica had planned to supervise the effort, but had had to cancel at the last minute when a friend offered her a singing gig that was too good to pass up. Her absence was unfortunate. She was at least twenty years younger than the rest of us, but there was something sobering about her. Or perhaps it was her age that was sobering. We all had children, most of them grown up, but we still thought of them as kids. We would have died of shame if any of them had caught us behaving in this way. If Federica had been there, I wouldn't have got so drunk, that's for sure.

"Let's continue?" Mark said, reaching for the notebook and the pen.

"Yes!" Helena said. "Where were we?"

"Sergey's books. What's the title of your latest one, man?"

"'Siberian Wood,'" Sergey said.

"Siberian what?" I asked with a chortle.

"'Siberian Wood,'" Sergey said and proceeded to explain why Siberian wood was superior to other types. Especially Siberian birch. Apparently, it could grow in the most hostile climates, which made it ideal for wooden sculptures, because it was both pliable and extremely hard.

"Siberian wood?" I howled. "Hard Siberian wood? Is it porn? Have you written a porn book, Sergey?"

Helena immediately joined in, chanting, "Super-hard super wood! Gimme some super wood!"

Even Alex started to laugh, shaking along with the cat, which was still in his arms.

I was laughing so hard that I dropped a piece of herring from my fork into Sergey's lap. He picked it up and placed it on the edge of his plate. His herring-stained knee was trembling. Federica had made him cut his hair way too short, and he looked like a bullied schoolboy. And, in this case, I was the bully. I felt queasy all of a sudden.

"Hey, why don't you go and lie down?" Mark said to me.

I stood up with some difficulty and

walked toward a small couch by the window.

"Wait," Alex said. "I'll give you another pillow. That one's all covered with cat hair."

But I was already lying down and very reluctant to move. I could still hear the others, but at least I couldn't see them and interpret their expressions as disgust toward me.

They were discussing what made Sergey special.

"Listen," Helena said. "Is it true that you've had six wives? I think someone mentioned that."

I knew who that someone was. It was me.

"Six wives, dude? Fucking A!" Alex said.

Sergey began to say that it all depended on the definition of a wife, but I yelled from my couch, "No! We count them all! All six of them!"

I loved counting Sergey's wives, because it made me feel less insecure about being Mark's fourth wife. At least I wasn't the sixth.

Sergey's sixth wife was Daria. She was an old friend of Mark's, one in an endless cohort of friends and acquaintances who came into my life after Mark and I got married. I didn't meet her until a year after our wedding, because she was living in Europe at that time, but Mark spoke of her often, always with a strange mix of awe and bewilderment, as if she were a character in a fable or a myth, a woman whose superhuman charm allowed her to get whatever she wanted, but who always fucked it up in the end.

Mark first met Daria about twenty years ago, in Boston, at a party for recent émigrés from the former Soviet Union. She was the center of attention, even though she wasn't witty or especially beautiful. For one thing, she was too tall—towering over the other guests like a lone tree in the middle of a prairie. Daria's grandfather was said to have been a Romanian aristocrat who'd ended up in Siberia, and her parents were famous sculptors—her father had received an important Soviet art prize. That father was also rumored to be a madman and a creep, who had caused Daria to run away from home when she was only sixteen. A few years later, she came to the U.S. all on her own and managed to get accepted into Harvard, and then into a prestigious arboriculture graduate program at some other school.

Mark was intrigued by Daria, but he didn't have the nerve to approach her. His wife (the second) had recently left him for another man and taken their daughters with her, and he was still reeling from that. As far as he remembered, he and Daria barely exchanged a few

words. So he was naturally surprised when she called him a week later to ask if he could pick her up from a hospital; she'd just had a procedure and wasn't allowed to drive. (Mark wouldn't tell me what the procedure was, only that recovering from it required a complicated diet.) He wondered why she'd contacted him of all people, and Daria admitted that he was not her first phone call. "You see," she said with a sigh, "most people turn out to be fair-weather friends."

Mark met Daria in the lobby of the hospital, walked her to his car, and helped her in. Then he asked where he should take her. She said that she was between apartments at the moment and asked if it was possible to stay at his place for a couple of days. She gave him a warm, crooked, miserable smile that made his heart melt.

Daria stayed at Mark's place for almost two months. He gave her the bedroom and slept on the living-room couch for the entire time. He did her laundry, got her groceries, cooked her food, and helped her with her schoolwork, all late at night after working long hours.

I wanted to know if they'd fucked, so I asked if their relationship had become romantic at some point. Mark said that it hadn't. Neither of them was interested. Or, rather, he did suggest to her, a week or two into her stay, that he was available, but he did it more out of politeness than anything else. She firmly declined, and the subject was never raised again.

They were very friendly, though. After a couple of weeks, Daria had recovered enough to take over cooking duties, and he'd come home to the delicious smell of stew. She was vegetarian and knew her way around vegetables, often using ingredients that Mark hadn't even heard of, like kohlrabi or Japanese turnips or chicory. She'd ask him about his daughters and listen with genuine interest, and she'd talk about her dreams of starting a family and building a house according to her own design, with a large back yard and a vegetable garden. They would all tend that garden together—she, her amazing, brilliant, beautiful husband, and their many kids. She and her husband would raise the kids to be vegetarians, because how could you not? Mark thought that there was something silly and artificial about Daria's fantasies. As if she had no idea what a family was or how it operated but took her clues from children's picture books.

After five weeks, Daria had fully recovered and had even resumed going to her classes, but she showed no inclination to look for her own place. It wasn't that Daria's company annoyed Mark, but he was starting to date again, and he wanted to be able to invite women to his place. He finally asked her when she was planning to move out. She acted surprised, even hurt, as if she couldn't imagine that he would actually want her to leave, and he dropped the subject. Their cohabitation might have gone on forever if it hadn't been for Mark's second wife, who suddenly announced that she had made a terrible mistake and was coming back with their daughters. He was afraid to tell Daria about this, worried that she would make a scene. But, when he finally did, Daria surprised him by squealing with joy. She seemed to be genuinely happy that Mark was getting his family back, even if it meant that she'd have to leave. Mark offered to help her look for a new place, but Daria said that she'd manage on her own. She proceeded to cold-call her many acquaintances and soon had a solid offer to stay with one of them.

Mark drove Daria to a ramshackle house in Sharon. A short, dishevelled woman surrounded by many children and barking dogs opened the door. It appeared that she didn't know Daria very well. Daria stood there leaning against the porch column, pale and smil-

ing, but the woman wasn't smiling back. It occurred to Mark that tall people in distress looked more vulnerable, more exposed than people of average height. He carried Daria's bag to a dark, stuffy room at the back of the house, and when he returned he saw Daria sitting on the dingy living-room carpet, desperately trying to engage both children and dogs in some sort of game. "Your kids are just wonderful!" Daria said to the dishevelled woman, then threw an apologetic glance at the dogs and hurried to add that the dogs were wonderful, too. This was when the woman smiled for the first time. Daria ended up staying there for four months.

Apparently, this was Daria's modus operandi. She had a gift for making people want to do things for her, like house and feed her or drive her places.

"Is she kind of a schemer, then?" I asked.

"No!" Mark said. "Not at all! Schemers have a long-term strategy. Daria is too impulsive for that."

She would effortlessly strike up friendships, but she'd ruin them just as easily. The problem was that, after a while, she'd start testing the limits of love and good will, demand too much, and then act betrayed if her demands weren't readily met. She wouldn't accept anything less than unconditional love, the sort of love that most people would expect only from a parent. Take her stay with that family in Sharon, for example. After a couple of months, Daria complained that her room was too stuffy and hot for someone who had recently recovered from a serious medical procedure and asked if anyone in the family would swap with her. It didn't end well.

"I was lucky that she only stayed with me for eight weeks," Mark said. "Not enough time for her to start acting up."

Daria's professional life seemed to follow the same pattern. She'd ace her interviews and get one great job after another, but soon she'd start insisting on her maximalist vision for whatever project she was working on, conflict would inevitably grow, and she would end up quitting or getting fired. After a few years, she'd acquired a reputation and accrued a lot of debt, so she had no choice but to leave the U.S. and look for a job in Europe. There, she repeated the same unfortunate cycle, and eventually she moved to Russia, where no one had heard about her troubling history, and where her Harvard degree gave her superstar status.

"What about her love life?" I asked. "Was it troubled as well?"

Mark said that he assumed so, but he actually didn't know that much about it. Daria was either extremely guarded about it or it was rather uneventful. "Who knows?" he added. "Some people are bad at love."

I took offense. My love life, unlike Mark's and that of most of our friends, wasn't very eventful, either. Basically, there had been only two men in my life, my ex-husband and Mark. Which didn't mean that I was bad at love, did it? What it actually meant, I thought, was that I treated love more seriously than the average person.

"Perhaps Daria's standards are very high," I said. "She won't settle for just anyone."

"Sure." Mark shrugged. "If you say so."

Then, about a year after that conversation, Daria called Mark to tell him that she had finally found the kind of love she'd been looking for her entire life. She was getting married! To the tallest, smartest, kindest, most brilliant, most beautiful man ever!

I felt vindicated.

She told Mark that she and Sergey had met when Sergey was working on a piece about Daria's father. He asked her for permission to use some old photos; they got to talking, first about her father, then about her childhood in Siberia, then about Sergey's passion for wooden sculpture, and her passion for trees. He asked her what her favorite tree was. She said Siberian birch. They couldn't stop talking. Couldn't get enough of talking. Couldn't get enough of each other at all. That was just what love was. When you couldn't not be with each other.

Mark recounted the conversation verbatim, and I thought that Daria's definition of love was the simplest and the best I'd ever heard. That was it. You couldn't get enough of each other. You couldn't not be with each other. Until suddenly you could.

Daria said that she and Sergey would get married in the U.S. They were moving here for good. She was sick of Russia anyway—it didn't agree with her, what with Putin's politics and the lack of quality vegetarian food. They would settle in New York City, because all the best landscape-design firms and museums were here, and she was sure that employers would be interested in a renowned arboriculturist and a renowned art historian. She had already found a place for them to stay—one of her former professors was putting them up in a spare bedroom. She promised to visit us as soon as she and Sergey had settled in.

"Too bad Daria won't be able to charm me," I said to Mark. "I'm not easily charmed. I'm too mean for that."

"We'll see," he said with a smile.

Still, I was very excited about meeting Daria. I kept assessing our tiny fifth-floor walkup, trying to decide if it was cool enough. My marriage to Mark had come as a result of a love affair that descended on us like a tornado, unwanted and unexpected, and upturned both our lives. Mark and I had left everything we had to our respective ex-partners, so

the only apartment we could afford was grimy and dark, furnished with the cheapest IKEA items. It had a single redeeming feature: a roof terrace facing the towers of the Eldorado building. Both Mark and I were ridiculously proud of our terrace, as if this were our baby. We had decided that we wouldn't try for a child together; Mark thought that he was too old, and I didn't want to hurt my kids' feelings. One of them was in college, the other was just about to start, but they were still vulnerable. I wanted them to know that, although I had left their father for another man, I would never replace them with other children. So, in a way, our roof terrace *was* the closest we came to having a child together—we gave it life by loving it with all our might. We bought some modest outdoor furniture so that we could have meals there. We even managed to grow a tiny vegetable garden, with herbs and tomatoes. And we ordered a small cherry tree, which arrived in a huge clay planter. We had to make frequent stops to breathe and curse as we carried it all the way to the fifth floor. Now, looking back at that period in our lives, I can't help but think of our attempts to "play house" as childish and silly, not unlike the fantasies of family life that Daria had shared with Mark.

Daria arrived at our place alone. She apologized for Sergey, who was delayed by a meeting with someone important at the Metropolitan Museum. She marched straight to the roof terrace and stood there admiring the view. Her height and her stately features would have been intimidating if it weren't for the awkwardness of her posture and her timid smile. She looked like a mother and a child molded together, both caring and vulnerable.

I was immediately smitten, and it didn't hurt that she proceeded to lavish me with attention. She asked questions about my family, praised my work, complimented the vegetarian food that I made, even asked for the recipe for my spicy cauliflower soup. No one had ever asked me for a recipe before! And then, after a shot or two, she leaned in and whispered that she thought that Mark and I were a much better match than Mark had been with his previous wives. Daria had never met No. 1, but, apparently, No. 3 was a nuisance, and No. 2 was a complete disaster, who had left Mark for another man not once but twice.

Then she said that, though this would be her first marriage, for Sergey it would be the sixth. "Can you believe that he's had five wives before me?" she asked. She said it with a laugh, but I could see that Sergey's complicated past worried her.

"I know the type," Mark said. "Too agreeable to say no to a woman and too restless to stay with one."

His words pricked me. I rushed to argue.

"No!" I said. "That's not it! Some men just refuse to settle for an imperfect marriage and prefer to keep searching for their true soulmate."

"May I hug you?" Daria asked, and, when she did hug me, I was stunned by the pure physical force of her gratitude. I hugged her back with almost as much force.

That was when I caught Mark smirking. I knew why. He thought that I was being a crow to Daria's fox, that her flattery was turning me into mush. He thought I was naïve enough to fall under her spell, just as he had been, just as everyone else had been. But he was wrong. Daria may have been a known charmer, but that didn't mean that she couldn't sincerely like me. Wasn't I likable? And, even if I was susceptible to Daria's flattery, why couldn't I genuinely like her, regardless of it?

Sergey was an hour and a half late. As if to compensate for that, he flew up the stairs to our apartment and arrived breathless and flushed, firing off one excited rant after another. He was in awe of New York City—the streets, the buildings, the traffic, the people, the energy, the art! The Met was just stunning, especially the wooden sculptures made by the Asmat people. They were breathtakingly complex—it was as if tree roots were growing out of a person's body, connecting her to her ancestors, who had roots growing out of their bodies, too, connecting them to the deeper past, and it went on and on. It was a brilliant way to show continuity of life, to hint at immortality. At one point, Sergey had to remove his glasses and wipe down the lenses, and I imagined that it was the steam of his incredible enthusiasm that had made them foggy. Then he looked up and noticed the twin towers of the Eldorado right in front of us, enormous, fantastical, bathed in golden light.

"Oh, my God!" Sergey said. "The view from your roof just might be the best thing about New York City!"

Now it was Mark's turn to be smitten and my turn to smirk at him.

Sergey wasn't as handsome as Daria had implied—Mark was more handsome, in my opinion, and also objectively speaking—but he was full of romantic charm. A charm of a different era. His height, his thinness, his longish hair, and his manic speech—it all evoked a sort of Quixotic hero. Actually, there was something Quixotic about Daria, too. As they stood on our roof together, their arms around each other, their eyes trained on the towers of the Eldorado, it was clear how good a match they were.

The only thing that Sergey found disappointing was the meal we served. "Oh," he said. "You're vegetarians, too." He looked both bored and betrayed, like a child who had received a pair of socks for Christmas. Mark said that we had some salami in the fridge, and Sergey's face momentarily lit up, but then he looked at Daria for permission. "O.K., just a little bit," she said and added in a conspiratorial whisper, "Men don't get perfect overnight. We have a journey ahead of us."

They had a beautiful wedding. Low budget but deeply moving. So moving that it made me regret our decision to get married at City Hall. Sergey and Daria exchanged vows on a Williamsburg pier, surrounded by a large crowd of Daria's friends, who chose to forget their old conflicts for the sake of the occasion. My impression was that only a few of the guests knew one another. The thing that they all had in common was that they had let Daria stay with them at some point. The best man and the matron of honor were her most recent hosts.

It was a cold and brutally sunny October day. The sun was in my eyes the whole time, and I couldn't find my sunglasses, so I kept placing my hands over my face to form a sort of visor. Daria was shivering in her cream-col-

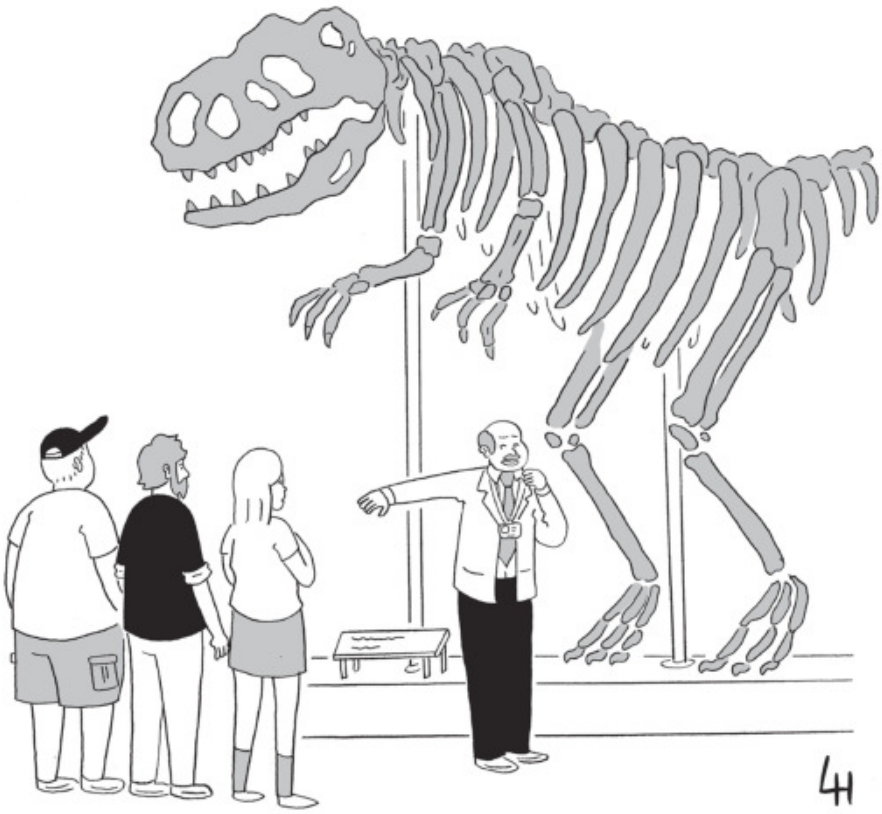
ored shift dress. Sergey took off his dark jacket and put it over her shoulders. But then he himself started to shiver, and one of the guests took off his jacket and gave it to Sergey. So then Daria had a jacket that was too big for her, and Sergey had a jacket that was way too short. I found this both silly and endearing.

The wedding officiant, Michelle, was a tiny elderly lady who had hosted Daria when she'd first arrived in the U.S. Michelle read a rambling speech from a sheaf of wrinkled pages that were violently flapping in the wind.

Then Michelle's granddaughter, Federica, a large and moody teen-ager back then, stepped forward to sing Leonard Cohen's "Dance Me to the End of Love," which was Daria and Sergey's choice. Federica's classmate was supposed to be accompanying her on the guitar, but she had cancelled at the last minute, so Federica had to sing on her own, which made the lyrics sound especially harsh.

"Don't you think it sends the wrong message?" I asked Mark, but he was too busy tearing up.

I imagined a couple dancing on a treacherously flat surface, like the top of a mesa, inching closer and closer to the edge without realizing it, until one of them made that unfortunate final step and the couple fell into the abyss, their bodies still bent in the shape of their last dance move.



"What, this old thing? Oh, my God, stop!"

• • •

"Did you know that Sergey met Federica at his wedding?" I asked Alex and Helena from my sofa.

"No! What?" Helena said, while Alex just shook his head and Mark looked at me with alarm. He hated it when I blurted out stuff like that. I decided to ignore him.

I pulled myself up a little and reclined against the cushions so I could see everyone. "She sang 'Dance Me to the End of Love,'" I said.

"Yes, that's true," Sergey confirmed. "My fiancée was looking for someone to perform for free, and our wedding officiant suggested her granddaughter. That was Federica."

It was amazing how much his speech had changed. It was the opposite of manic now. If anything, it was too slow and measured. I wondered if this change had taken place during his marriage to Daria or after she had left.

"Federica has such a beautiful voice," Helena said with a sigh. "Is she going to be wife No. 7?"

"I don't think there is going to be a seventh," Sergey said.

Neither Helena nor Alex had had a chance to meet Daria, because they had become our friends quite recently, during the post-pandemic shakeup, which resembled the movement of tectonic plates. Some of our friends had moved away geographically, others ideologically. Social circles had changed their familiar boundaries, narrowed, expanded, merged, broken. We'd lost a few friends and made some new ones, Alex and Helena among them. They had met Sergey through us, at our place—not at our old place with the roof terrace but at our more practical new apartment, where we'd moved when our old landlord refused to renew our lease. I thought of that move as the termination of the romantic phase of our marriage. What followed was a murky, unsettling period that could possibly lead to the formation of a tender and comfortable routine but could also signify the beginning of the end.

Sergey's marriage to Daria had lasted eight years, and some people said even that was a miracle.

Money was one of the problems. A big one. Sergey couldn't find a job. Daria would set him up with one important person after another, but it didn't help, because Sergey's English didn't improve, no matter how hard he tried—or perhaps, as Daria suggested, he simply didn't try hard enough. His only income came from his occasional publications in art magazines. True to herself, Daria easily found jobs and just as easily lost them. They kept living at friends' apartments, a few months here, a few months there. These stays rarely ended well, and I was secretly happy that our apartment was too small to house them.

Their failed fertility treatments were another problem. They tried everything. I will never forget Daria's face after

each attempt. It wasn't grief, it was worse—an ashen emptiness and despair. It was different for Sergey. He sat there, sombre and attentive, holding Daria in his arms, but he seemed a little bit relieved.

Before Daria, I had never really understood this particular pain. I had both my kids when I was very young. I was too focussed on the struggles of motherhood at that age to see the magnitude of suffering that childlessness could cause. I'd spend hours discussing with other young mothers how tied down we felt. It was so much easier to list the hardships of having a child than to pinpoint the things that made it worthwhile. What was it that made it worthwhile, anyway? It was not about being fulfilled, no, though it was about being full—full of care, full of worry, full of affection, full of a love so great and pressing that it was almost indistinguishable from pain, full of something heavy and real that made you feel grounded, rather than weightless. You felt more *there*. That was precisely what Daria desperately wanted—to feel rooted, securely tied down.

After each failed attempt, Daria would stay in bed for a very long time. Then she would lash out at Sergey, attacking him for days—sometimes weeks. "He's going to run!" everyone said after yet another attempt had gone nowhere. I thought so, too, and yet I wanted to be proved wrong. I wanted to know that love would win in the end. I wanted to know this for Daria's sake and for mine.

It was the pandemic that did them in. Not the disease itself—neither of them caught it—but the new life order that the pandemic brought about.

Shortly before COVID started to spread, Daria got an unexpected job offer in Iceland, of all places. She wanted Sergey to go with her, but his immigration lawyer advised him against leaving the U.S. while he was waiting for his citizenship papers. Daria decided to go alone; it was a temporary job, anyway, and she'd be gone for only six months. She arranged for Sergey to stay with Michelle, the elderly lady who'd officiated at their wedding.

Little did she know that a few weeks later the entire world would be put on hold—offices would be closed, universities would be shuttered, and students would be sent home to continue their education online—or that Federica, who had been attending the Berklee College of Music, would move back in with her grandmother.

For the first few months, Daria and Sergey had daily Zoom calls, during which they shared every detail of their lives. One day, Daria called while Sergey and Mark and I were having a picnic in the park. He stepped away for privacy, but we could still hear every word. Sergey told her that he'd borrowed Michelle's bike and ridden across the Brooklyn Bridge and into Manhattan, where the streets were so empty that he zigzagged up Fifth Avenue. Daria said that she'd had to walk to a store through a blizzard even though it was April. Despite the brutal climate, she said, Icelanders seemed like nice, relaxed people. For the first time ever, she had no conflicts at work. "Those folks are used to constant volcanic eruptions," Sergey said. "They are uniquely qualified to handle someone like you." Daria laughed.

It was during one of these Zoom talks that Sergey told Daria that he and Federica were now together.

Mark and I heard about the breakup from Sergey. We tried to call Daria many times, separately and together, but she wouldn't answer. Wouldn't talk to anyone. She even deleted her social-media accounts. Some friends told us that the Icelandic firm had offered Daria a permanent position and that she had accepted, but we didn't have any other information about her.

"Hey, are you doing O.K.?"

I opened my eyes and saw Mark kneeling by the sofa. He traced his finger along my cheek, and suddenly the enormous distance dividing us was gone. He was not planets away—he was right there, right next to me, with me, mine. It never ceased to amaze me that mere physical contact could do that. His expression was tender and a little teasing.

He knew what I was scared of, and he was trying to let me know that we didn't have to be scared of that. Not yet, anyway.

"Do you want to go home?" he asked.

I nodded.

He shooed the gray cat off my feet and helped me up.

Helena and Alex tried to protest. "Are you leaving? What? So early! No! We'll get the other bottle out. It must be cold enough by now!"

But we said what people always say in this situation—that we had an early start the next morning.

We took a long time putting on our scarves, hats, and coats, and lacing up our winter boots. Then Helena asked us to wait while she wrapped up some dessert for us. Then Alex decided to tell Mark a really long joke. Sergey remained seated at the table, picking at a crumbling piece of potato on his plate.

We were already in the hallway waiting for the creaky elevator when Sergey came out of the door and started limping toward us.

"My leg fell asleep," he explained.

We braced ourselves. We knew that he was going to ask if we had heard from Daria, because he asked us that every time we met.

"No, nothing, man," Mark said.

Sergey nodded and limped back to the apartment.

But I did know something about Daria, something that I wasn't going to share. I had recently stumbled on a piece about her in an online magazine. Well, to be completely honest, what I did was Google Daria every couple of weeks. Usually, I'd come across a mention or two, but this time there was a long feature describing the new project of the "spirited American arboriculturist" who was going to plant some trees in the barren vastness of the Icelandic highlands.

There was a photo of Daria in the middle of a sea of volcanic ash, kneeling over a puny tree. She had her head cocked to one side, and her self-conscious smile suggested that she knew some people might find her endeavor ridiculous, like that of a child "planting" a stick in the sand. And yet she was doing it anyway. There was something inspiring in her insistence on continuing to try when most people would have given up, in her ability to preserve hope, no matter how absurd it was.

I saved that photo on my phone. Even the happiest lives inevitably lead to grief, both expected and unexpected. I hope that, when it comes to me, that photo of Daria will help sustain me. ♦

NEWYORKER.COM
Lara Vapnyar on immigration and idealism.

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THE ART WORLD

THE GREAT INDOORS

How Matthew Wong turned loneliness into a landscape.

BY JACKSON ARN

"Matthew Wong: The Realm of Appearances," at Boston's Museum of Fine Arts, is the oddest of ducks, a superb exhibition in which half the paintings are clumsy. Even some of the superb ones are half clumsy. That's Wong's charm in a nutshell, though: he seems to have had little interest in producing tasteful, polished, well-made art, thank God. His limitations were obvious from the start; in the years leading up to his suicide, in 2019, at the age of thirty-five, he didn't correct them so much as put them to work. Once he got going, his compositions stumbled their way into smart choreographies, and his colors could be so dog-whistle shrill as to land with an eerie hush. He was a terrifyingly fast learner, too—walking through this show is like watching one of those time-lapse videos of a plant exploding out of soil. In a fair world, there would be a forest by now.

Wong painted landscapes. Art history offers a few possible terms for his style: "naïve art," "outsider art," "art brut." "Outsider art" seems to be the one that's stuck ("Outside," a 2016 group show in Amagansett, helped put him on the map), though the truth is grayer. He taught himself to paint, but only after he'd cooled on photography, the subject of his M.F.A. He spent little time in New York but years in Hong Kong, home to the third-biggest art market on the planet. Despite being tall, good-looking, and snappily dressed, he often felt uncomfortable around people, and struggled with depression and autism. He had powerful allies in the Manhattan gallery world, though most of them

In "The Kingdom," and many works like it, Wong made nature look like the interior of some cramped, windowless room.

he met only near the end of his life.

How much of an outsider was he, really? It's a silly question, but it matters. A Wong painting is *about* inside versus outside, in every sense: social, psychological, spatial, formal. He knew his blue-chip artists, and the wall text identifies bits lifted from Wu Guanzhong, Gustav Klimt, Yayoi Kusama, and Edvard Munch. (The show, organized by the Dallas Museum of Art and curated by Vivian Li, does a smart job of exploring Wong's influences without overexplaining.) On the other end of the seesaw, you find visual ideas so basic that you've known about them since you were four: the sun is a yellow disk with lines poking out of it; a body is a blob with four sticks and a circle attached; a tree is a vertical line with squiggles on top. The childish comes face to face with the canonical, but there's no dialogue between them, unless collision counts. Wong never tries to lighten the mood, either. His paintings are humorless to the bone, and their thick impasto surfaces, invisible in the Facebook photos that first got gallerists' attention, add a bonus whiff of anxiety.

When images like these don't work, they are crude and nothing else. When they do, they are crude and *everything* else: vulnerable, cunning, ecstatic, menacing. "The Kingdom" (2017) is a painting of a forest that a terrified kid might dream about. You wouldn't be wrong to call it Wong's homage to Klimt's "Birch Forest" (1903), but it's more like a point-by-point rebuttal: instead of cozy emptiness, he gives you a suffocating place that wasn't meant for human beings; instead of Klimt's misty outdoor cathedral, he hits you with a phalanx of pale, blue-spotted trees, the pigments all but pricking your eyeballs. He has a way of making the outdoors look like the interior of some cramped, windowless room. There is a small, crowned figure—possibly a reference to the Chinese character for Wong's last name, which means "king"—but nobody else. What's the point of ruling a place where you can barely breathe?

Most of the art in this show has been divided between two galleries: one, in the horribly abbreviated terms that Wong's death imposes, for "early" work and the other for "late." I suggest you walk briskly through "late," take "early" at mid-tempo, and finish by giving "late" the second, longer look it deserves. There's a fine line between chaos and incoherence, and Wong needed a few years to get on the right side of it. "Heaven and Earth" (2015), one of the oldest works on display, is both a fair sample of the abstract ink-on-paper painting that he favored at first and a prime example of garden-variety confusion: there's no rhythm or momentum to the brush marks, which go from thin to thick to splattered with an abruptness that's almost surly. The early triumphs tend to be bits and pieces rather than entire paintings—the tall, gray mountain in "Landscape of the Longing" (2016), which bears a freaky resemblance to a sleeping vulture; or the furious sun in "Landscape with Mother and Child" (2017), which looks like the kind they used to sacrifice people to.

By 2018, Wong had learned three important tricks: sowing his landscapes with small figures to provide a sense of scale; using snaky diagonal forms (rivers, roads) to separate near from far; tempering layers of warm colors with cool ones. Marvel at how far the trio takes him in the mini-epic desert scene "Once Upon a Time in the West" (2018). The brushwork hasn't changed too much, but now a magnetic current runs through everything: your gaze shoots from the dozing woman and the little beast in the foreground to the dark mountains in the distance, and when you get tired of the bright oranges and pinks in the lower half you can rest your eyes on the deep blues above. The painting's title comes from Sergio Leone—Wong was a cinephile, too—but its light reminds me of a line from David Lynch's "Mulholland Drive": "It's not day or night. It's kinda half-night, you know?"

The paintings that Wong completed in 2018 and 2019, the last two years of his life, tend to have this half-night illumination, a glow that is also a burn. It was around this time that he discovered how much drama he could wring from the color blue. Mix one breakthrough with the other and you get "Tracks in the Blue Forest" (2018), something like the long, weary sigh to "The Kingdom"'s panic attack. When you study it closely, you begin to see how savvy Wong was at turning his formal weaknesses upside down: he was never great at conveying weight, but that's half the reason the painting works. The lower edge is an almost indecipherable bluish white, and the trees don't widen with roots as they approach the ground—they just stop, as though dangling from the sky. The more you stare, the less solid it all looks, until the only thing left holding you steady is the set of footprints running up the middle of the canvas, at once comforting and tormenting.

"Tracks in the Blue Forest" is, unmistakably, a painting about loneliness, the curse of outsiders who want to come in. It was Wong's great theme, and at his best he handled it with amazingly little mawkishness. That isn't to say that "Tracks" is *un*-mawkish: like a number of the later, gentler paintings on display, it flatters loneliness with beauty, and seems to long for an old-fashioned, Munchian version of the feeling, all grand introspection and dazzling vistas. By contrast, there isn't a single sentimental brushstroke in "Old Town" (2017), let alone a nostalgic one. More than any image I can think of, it looks the way twenty-first-century digital isolation feels: bright and draining, without the alibi of physical distance. It's another claustrophobic landscape—even the sky is just one more gawky structure—but this time nothing is obviously wrong, which means that nothing can be repaired. Tiny figures seem too far away for conversation but not far enough to long for one another. Their pain is deafening. Normally it makes sense to praise a work of art by saying that you could look at it forever, but in the case of "Old Town," one of the most haunting paintings of the past few years, I almost wish I could forget. ♦

From GQ.

Alexander Vindman received a Purple Heart after being wounded by an IED, or improvised explosive device, not an IUD, or intrauterine device. We regret the error.

Another casualty in the war on women.

HOLY MATRIMONY

George Eliot's secular sacraments.

BY JAMES WOOD

Marriage formed the moral center of the novelist's principled agnosticism.

"Literature bores me, especially great literature," the narrator of one of John Berryman's "Dream Songs" says. George Eliot sometimes bores me, especially the George Eliot draped in greatness. Think of the extremities of nineteenth-century fiction: labile Lermontov; crazy, visionary Melville; nasty, world-hating Flaubert; mystic moor-bound Brontës; fanatical, trembling Dostoyevsky; explosive Hamsun. There's enough wildness to destroy the myth of that stable Victorian portal "classic realism." It was not classic—certainly not *then*—and not always particularly "real." Instead, it was a storm of madness, extravagant allegory, tyrannical ambition, violent religiosity, violent atheism. Amid this tableau, at the calm median of the century's religious belief and its unbelief, is wise, generous George Eliot: the saintly oracle consulted and visited by young Henry James and many other important admirers (Wagner, Emerson, Turgenev), sitting on her moral throne like a more interesting Queen Victoria (the Queen was, in fact, one of her eager readers), in her distinguished house in Northwest London, named, fittingly, the Priory.

It was this George Eliot whom Virginia Woolf had in mind when she wrote, in 1919, that the long-faced, oracular Victorian had become, for Woolf's generation, "one of the butts for youth to laugh at." When George Eliot became respectable, she became very respectable indeed. In the eighteen-seventies, at the height of her career, she received visitors at the Priory on Sunday afternoons. Her devoted husband, George Henry Lewes, who was known to call his wife Madonna and these Sunday audiences "religious services," bossily hovered and hosted, sometimes drawing guests to his study, where, beneath a portrait of the novelist, her manuscripts were covered, shrinelike, by a curtain. This George Eliot was not only the celebrated author of "Adam Bede" (1859), "The Mill on the Floss" (1860), and "Middlemarch" (1871) but the purveyor of "Wise, Witty and Tender Sayings" (1872), a briskly selling book of extracts from her work compiled and prefaced by a young devotee who thanked her for having "sanctified the Novel by making it the vehicle for the grandest and most uncompromising moral truth."

Even now, in a world of quite different pieties, it can be difficult to disinter George Eliot from our reverence, to rediscover the writer who had enough radical daring and agnostic courage to take on the whole sniffing righteousness of Victorian England. Clare Carlisle's eloquent and original book, "The Marriage Question: George Eliot's Double Life" (Farrar, Straus & Giroux), allows us to do that, by placing at the center of her inquiry the abiding preoccupation and scandal of George Eliot's life and work: marriage. In an age that sanctified marriage, George Eliot was nearly the most sublimely married person in the land. In her letters and journals, in the manuscripts she unceasingly dedicated to her husband, she gave thanks for her marital fortune, for the beautifully sympathetic "double life" she shared with George Lewes, a distinguished essayist and thinker in his own right. Her journals describe the tranquillity of their shared days in London, or deep in the English countryside, or travelling in Germany and Italy: mornings reserved for writing, a walk or a museum visit in the afternoon, evenings for reading, often aloud to each other—a strenuous ease she called "a happy solitude à deux."

Yet George Eliot wasn't legally married to George Lewes, who was separated

ILLUSTRATION BY FABIEN CORRE

from, but could not divorce, his wife, Agnes Jervis. George Eliot wasn't always George Eliot, either: she was Marian Evans when she first eloped for the Continent with Lewes, in July of 1854, escaping English judgment for European indifference. Born as Mary Anne Evans in 1819, the same year as the future Queen Victoria, she grew up in the rural Midlands, a settled and conservative region that she would later fictionalize as Loamshire—the stubborn stomach of England, slow to digest politics into action. Her father, whose formal education was basic, was a shrewd and trusted estate manager for an aristocratic Warwickshire family. Mary Anne's brother, Isaac, apparently as averse to change as his father, succeeded him in the same job. But Mary Anne couldn't stay put. She was a restless reader who had an aptitude for languages (one of her early crushes was on a private tutor who taught her Italian and German), and she possessed, even as a teen-ager, the kind of scorching, radical austerity that turns intellectuals into prophetic outsiders, a status she awarded to several of her fictional protagonists—Maggie Tulliver, Dorothea Brooke, and Daniel Deronda. The adolescent Mary Anne was herself a fervently pious evangelical, seething with Calvinist fatalism, wary of non-sacred music, and forswearing her attraction to her tutor by quoting a verse from the Book of Isaiah: "Cease ye from man."

But on Sunday, January 2, 1842, something wondrous and strange occurred. As if the new year demanded from her a new soul, the twenty-two-year-old Mary Anne Evans, who still lived at home as her father's housekeeper, announced that she would not go to church. In the nineteenth century, there were at least three reliable germs of religious doubt; all three infected some people at once. You might brood over theodicy (how to reconcile God's supposedly providential goodness with the pain of the world); you might brood over evolution and the long history of the world (this sometimes overlapping with theodicean anxieties, since the long history of the world would appear to be an epic of suffering and extinction); and you might start reading the Bible stories as if they were stories, rather than divine revelation. Mary Anne Evans succumbed to the third illness. Around this time, she read Charles Hennell's "Enquiry Concerning the Origin of Christianity," published three years earlier, and concluded that the Biblical accounts of Jesus' ministry were "histories consisting of mingled truth and fiction."

The Scriptures might not be divinely authoritative, she told her bewildered father, but there was much about Jesus' moral teaching that she found admirable. Here was the characteristic overcorrection of the mid-century: a slightly nervous compensation for sudden loss, like overpraising a relative at his funeral. The German scholar David Friedrich Strauss similarly compensates for the loss of God in his immensely influential revaluation of the Biblical narratives, "The Life of Jesus, Critically Examined" (1835); Ernest Renan does the same in his popular biography "The Life of Jesus" (1863). The air had gone out of the theology, but the moral cushions could still be plumped up. That inflation repelled Nietzsche, who, in "Twilight of the Idols" (1889), attacks George Eliot as one of those Victorian moralists who have "got rid of the Christian God, and now feel obliged to cling all the more firmly to Christian morality."

Renan, a flowery stylist who splashes consoling perfume over Christ's corpse as he flees, deserves Nietzsche's hammer. But George Eliot was intensely sincere in both her agnosticism and her moralism. And, more than just sincere, she was strict, searching, systematic, scholarly. She had thought her way into evangelicalism; now she thought her way out of Christian belief. She translated David Strauss in the eighteen-forties. In the early eighteen-fifties, she would translate Ludwig Feuerbach's "The Essence of Christianity" (originally published in German, in 1841), a prescient work in the literature of atheism which argues with a brisk and almost jaunty logic that the love of God is really just the love of man; that we project onto the divine those qualities which we cherish in ourselves. And she read Baruch Spinoza, beginning in the eighteen-forties with the Dutch philosopher's "Theological-Political Treatise" (originally published in 1670) and moving on to the "Ethics" (1677), which she arduously translated from the Latin in the mid-eighteen-fifties.

Spinoza was infamous for his sometimes inscrutable variety of pantheism, in which God no longer sits outside Nature, paring his fingernails (James Joyce's joke), but effectively *is* Nature, inextricable from it. The supernatural, miracle-working, interventionist God, loaded up with human attributes and projections, slips away into Nature. For all practical religious purposes—prayer, comfort, salvation, immortality—Spinoza kills off God, as many humans would understand the notion. Spinoza was excommunicated by the Jewish community of Amsterdam in 1656, and could probably still get himself excommunicated somewhere today. But he had his own way of compensating for theological lack, and its clearest articulation is to be found in his earlier work the "Theological-Political Treatise." In that incandescent text, Spinoza argues, among other things, that the Biblical miracles were not miraculous; that divinity is at bottom the moral law; that the essence of that law consists of loving God and loving one's neighbor; that right living therefore has nothing to do with one's beliefs or doctrines but is simply a matter of obeying and piously enacting the law; and that this law is divinely inscribed in our hearts. All of which raises the haunting question of whether this universal moral law needs Scripture or the Almighty at all. Does the Good need God—or, rather, "God"? Not for a twentieth-century writer like Iris Murdoch, a novelist who is, in some ways, George Eliot's nearest intellectual successor, and who writes, "The image of the Good as a transcendent, magnetic centre seems to me the least corruptible and most realistic picture for us to use in our reflections upon the moral life." George Eliot was always drawn to the magnetic center of the Good. It's easy to see how appealing this kind of idea might have seemed to an intensely religious, morally provoked, and theologically dispossessed Victo-

rian intellectual, one who was, furthermore, not many years away from attempting to write her own kind of Scripture, Scripture in a different, newer language: the sanctified novel.

This was the writer and thinker who crossed paths with George Lewes, in a Piccadilly bookshop, in 1851: fierce, unrespectable, uninsured. She had arrived in London at the start of that year, had changed her name to Marian, and by the end of it was the de-facto editor of the capital's leading progressive journal, *The Westminster Review*. During the next few years, she published there a series of brilliant essays, the most exciting of which belongs in the annals of anti-religious complaint, her decapitation of the evangelical preacher Dr. Cumming, with its devastating opener: "Given, a man with moderate intellect, a moral standard not higher than the average, some rhetorical affluence and great glibness of speech, what is the career in which, without the aid of birth or money, he may most easily attain power and reputation in English society?"

One can forget what a funny satirist George Eliot was. In "Adam Bede," for instance, the once religious writer, who knew exactly how dreary Sundays could be, tells us that even the farmyard animals appeared to recognize the Sabbath: "The cocks and hens seemed to know it, and made only crooning subdued noises; the very bull-dog looked less savage, as if he would have been satisfied with a smaller bite than usual." Anyone who has read "Middlemarch" remembers these formidable words about Mr. Casaubon, the parched parson and scholar: "With his taper stuck before him he forgot the absence of windows, and in bitter manuscript remarks on other men's notions about the solar deities, he had become indifferent to the sunlight." But funnier and more compact is this addition, several paragraphs later: "'Yes,' said Mr Casaubon, with that peculiar pitch of voice which makes the word half a negative." Casaubon, though, is almost avuncular when set alongside the loathsome Henleigh Grandcourt, from "Daniel Deronda" (1876). Like Henry James's Gilbert Osmond, Grandcourt is terrifying in his very calm, "a handsome lizard," a bully incapable of love who speaks to his abused wife, Gwendolen, in "an *adagio* of utter indifference." And he has many dogs: "Grandcourt kept so many dogs that he was reputed to love them."

Carlisle vividly animates this dangerous writer, and sets before us, in her early chapters, the young woman of letters before she became "George Eliot"—the tyro editor glimpsed, for instance, by a colleague on *The Westminster Review,* correcting proofs in the evenings, sitting sideways in an easy chair with her legs over the arms, and her long hair over her shoulders. Lewes might have seemed her opposite, at least temperamentally. He was buoyant and confident; she was given to despondency and uncertainty. He was the kind of journalist who could write about anything, and did so; her work has a holy coherence. But, as Marian wrote in a letter, Lewes's flippancy masked great conscience and heart. And they had shared intellectual and literary interests, particularly in philosophy and contemporary German thought. Like Marian, George Lewes had studied Spinoza with the utmost admiration. In his popular and still very readable "Biographical History of Philosophy" (1845-46), Lewes praised Spinoza for creating a body of thought that had been accused for nearly two centuries of the most wicked blasphemy but that had turned out, in the past sixty years, to become "the acknowledged parent of a whole nation's philosophy," by which he meant Germany's.

He and Marian read slightly different Spinozas, Carlisle suggests. Lewes used Spinoza to confirm his atheism, while Marian used him to question her faith. Lewes wrote that Spinoza was not one of those philosophers who "deride or vilify human nature: in his opinion it was better to try to understand it." Marian would continue to play the serious agnostic to her husband's unruffled atheist. And perhaps she was always the austere religionist to his worldly humanist. The humanist takes human nature as it comes; the religionist tries to improve it, starting with herself. George Eliot's novels are full of personal renunciations and reformations. Adam Bede wins the joyous ending of marrying Dinah Morris only by undergoing a moral transformation that

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earns an authorial blessing churchy enough to sound like something from the marriage service itself: "What greater thing is there for two human souls, than to feel that they are joined for life—to strengthen each other in all labour, to rest on each other in all sorrow, to minister to each other in all pain, to be one with each other in silent unspeakable memories at the moment of the last parting?" Both Rosamond Vincy and Gwendolen Harleth, in "Middlemarch" and "Daniel Deronda," respectively, learn to become better people by, essentially, wanting less. Carlisle, indeed, offers the rather brilliant insight that the relationship between Dorothea Brooke and her less morally intense sister Celia, in "Middlemarch," may echo an element of Eliot's marriage to Lewes: Lewes as Celia, content enough to take reality as it is, and Eliot as Dorothea, impatient to change it.

There were plenty of English Victorians, Christian at least in their self-reckoning, who wanted to improve Marian Evans's behavior, once the news emerged that she was living with a man who was not her legal husband. Her brother, Isaac, did not communicate with his sister for the next twenty-three years, breaking his silence only after George Lewes's death, to commend her legal marriage to Lewes's sapless successor, a banker named John Cross. Twenty-three years represented the heart of Eliot's literary career, the two decades in which she became the country's most admired novelist. Even some of those admirers were squeamish. Elizabeth Gaskell, writing to Eliot to praise her work, couldn't avoid adding, "I wish you *were* Mrs Lewes . . . still, it can't be helped." Eliot and Lewes held their "religious" audiences on Sundays not because they were taking confession but because the business of how to socialize was so tricky: early in their marriage, Eliot decided that she would guard herself against slights by refusing all social invitations. When married men came to the Priory, they almost always came without their wives.

Carlisle, a philosopher who has written studies of Spinoza and Kierkegaard, combines a biographer's eye for stories with a philosopher's nose for questions. Her masterly and enriching study is based, I think, on two related premises: that marriage is a private story, about whose intimacies we can only speculate (novels, of course, and George Eliot's novels preëminently, dramatize those intimacies for us); and that marriage is also a public story, a constantly adjusted fable, the propaganda that a household needs in order to run its little polity. Here are two lives, as James Salter puts it in his novel of marriage, "Light Years," the one people believe you are living, and "the other": "It is this other which causes the trouble, this other we long to see." Both narratives, private and public, differently restrict our access, so the ideal historian will need great tact and an impious curiosity. Carlisle has both. Although she carefully builds on the work of scholars and writers like Gordon S. Haight, Rosemary Ashton, Phyllis Rose, and, especially, the subtle investigations of Rosemarie Bodenheimer, she's unafraid to treat Eliot's undoubtedly happy, successful marriage as simultaneously a public exercise in happiness and success—and to do so without cynicism.

One of the loveliest things about George Eliot's life is the calm confidence with which she slays the dragonish norm-keepers of Victorian morality. She wrote to her brother's lawyer with gentle emphasis: "Our marriage is not a legal one, though it is regarded by us both as a sacred bond." In one sense, it must have seemed as simple as that. She was blessed to love and be loved by the man she called her husband. The doubters had to catch up. But it could not be quite as simple as that. Carlisle has a very sensitive chapter, for instance, about Eliot's relation to motherhood. She and Lewes had no children of their own, but Lewes brought with him three sons—Charles, Thornton, and Bertie—from his previous marriage. Eliot was painstakingly sincere in her attentions as stepmother to the boys (who were largely absent, away at boarding school). Playing the right role as mother, Carlisle acutely suggests, would strengthen Eliot's claim to be Lewes's wife. She traces the awkward growth of Eliot's self-appellations. Letters from stepmother were first stiffly signed "Marian Lewes," then "Mother" (though Eliot enclosed the word in quotation marks), and finally, Teutonically, "Your loving Mutter," which seemed the best compromise. As far as one can tell, it was a loving and mutually respectful relationship. But Carlisle conveys its fraughtness. Marian Evans was still young enough to bear children of her own when Lewes's boys entered her life. We know from her journals that menstruation regularly brought headaches, fatigue, and melancholy. (Eliot asterisked her periods.) Perhaps, Carlisle speculates, her periods also brought chagrin, "a reminder of the possibility of motherhood and a premonition of the pain and danger of childbirth."

Motherhood is a thread that runs darkly through Carlisle's book, because two of the boys, Thornton and Bertie, would die in their twenties. The Eliot-Lewes household seems to have been able to absorb their young deaths without severe interruption. In 1869, Eliot started writing "Middlemarch"—sparkling, witty episodes—while Thornton was dying in her house. Six years later, in her journals for 1875, she notes Bertie's death in July (he died far from home, in South Africa), and then almost immediately follows the flat record with: "the 2 first volumes of *Daniel Deronda* are in print." Only a few months after this, on January 1, 1876, she summarizes the current state of domestic happiness and looks back on the previous year: "All blessedness except health!" Eliot's marriage was a kind of public religion, and the religion of her marriage demanded, as Carlisle puts it, growing happiness and ideal love as the best advertisement for her decision to defy the rules of propriety. The marriage was too big to fail. Perhaps, Carlisle boldly muses, "her marriage, and the creative life that was inseparable from it, could not sustain the presence of Thornton and Bertie." She goes on to conclude that, though there's no question of Eliot's devotion to Lewes, it is "devotion to her art . . . that shines most constantly through the pages of her diaries and letters." Certainly, the married "double life" of Carlisle's subtitle can be interpreted in more than one way. In order to achieve what she did, she had to live the somewhat clandestine double life of the artist-spy: warm wife in the drawing room, and abso-

lute writer in the study. Her life was a happy "solitude à deux," but an imperative solitude nonetheless. (In "Middlemarch," Eliot brilliantly describes Rosamond's unhappy marriage to Lydgate as "a yoked loneliness.")

I'm not aware of any other biographical account willing to press this case with quite this force. By centering the religion of marriage, Carlisle usefully allows us to read George Eliot's peculiar strain of religious agnosticism in its light. Eliot's religiosity, the thing the spitefully unmarried Nietzsche so hated, was inseparable from the religion of marriage. "The very possibility of a constantly growing blessedness in marriage is to me the very basis of good in our mortal life," she wrote to a correspondent. Perhaps the magnetic center of the Good was no more and no less than the magnet of marriage? Return to the eloquently calm defense she offered her brother's lawyer: "Our marriage is not a legal one, though it is regarded by us both as a sacred bond." It is, Eliot says here, not the letter of the law but the spirit that is sacred. Inwardness is outwardness. That's George Eliot's "religion" in a sentence. But which comes first, the belief in the primacy of inwardness or the belief in the intimacy of marriage? Either way, the danger, from the viewpoint of official Victorian Christianity, is that the sacred has been redefined without ecclesiastical warrant. And if the sacred can be thus redefined then everything is up for grabs. This emphasis on inwardness is obviously a kind of Protestantism—in particular, the kind of dissenting spiritual enthusiasm to which all Protestantism inevitably leads. But the sentiment is perfectly compatible with Spinoza's theological ethics. For Spinoza, the summit of the moral law is charity, loving-kindness, and this moral law is inscribed on our hearts. We prove ourselves moral, then, not by what we profess but by how we live, and therefore by how we love; we will be known by the quality of the marriage that we make with the world, by the moral marriage we make with our neighbors. That is what Spinoza, who was himself unmarried, calls "true religion." Everything else is hypocrisy and superstition.

So there was the religion of marriage, the religion of Spinoza, and the

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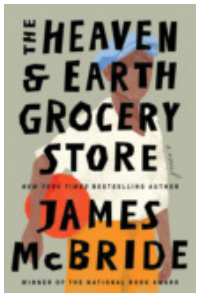
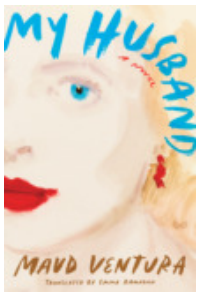
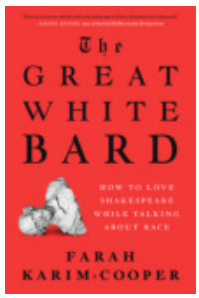


The Heaven & Earth Grocery Store, *by James McBride (Riverhead)*. This wily, gleefully clamorous novel opens in 1972, with the discovery of a skeleton in a well in Pottstown, Pennsylvania, but it largely unfolds three decades prior, with the events that led to the skeleton's existence. Though the Black, Jewish, and newly arrived immigrant residents of the tumbledown Pottstown neighborhood of Chicken Hill have clashing ideas about America, they band together to protect a deaf Black boy from the state's clutches. The novel's down-home cadences cloak its elaborate narrative circuitry, and McBride makes farcical use of the fear of newcomers held by white characters, such as the town's physician, a Klansman. The Jewish woman who runs the local grocery store feels otherwise, saying, of Chicken Hill, "America is here."



My Husband, *by Maud Ventura, translated from the French by Emma Ramadan (HarperVia)*. "My husband marks the start of when my life was worth being archived," the narrator of this black comedy of modern marriage confesses. Ventura's protagonist, a forty-year-old English teacher and mother of two whose husband works in finance, is a comically exaggerated cliché whose sole concern is maintaining her husband's interest: she lies to him about her hair color and pretends to be asleep so he doesn't see her without makeup. But, as the story progresses, the intensity of her fixation is contrasted with his profound indifference, and her vapid exterior is shown to mask desperate anxieties about class, gender, and power.

The Philosopher of Palo Alto, *by John Tinnell (Chicago)*. As the chief technology officer of Xerox PARC, a research company and erstwhile hotbed of Silicon Valley innovation, Mark Weiser believed that screens were an "unhealthy centripetal force." Instead of drawing people away from the world, devices should be embedded throughout our built environment—in lights, thermostats, roads, and more—enhancing our perception rather than demanding our focus. Weiser's pioneering ideas, which he refined in the nineteen-eighties and nineties, led to the present-day Internet of Things, but his vision lost out to the surveillance-capitalist imperatives of Big Tech. Tinnell's profound biography evokes an alternative paradigm, in which technology companies did not seek to monitor and exploit users.



The Great White Bard, *by Farah Karim-Cooper (Viking)*. In this lively appraisal, a Shakespeare scholar reckons with her love of the playwright's works while exploring their role in cultivating "a unique brand of English white superiority." Karim-Cooper's attentive readings show how beliefs about race reside in the language of the plays: "Romeo and Juliet" is suffused with metaphors that "elevate whiteness above blackness," whereas "The Tempest" complicates attempts to describe characters with fixed labels by blurring the boundaries between "beauty and monstrosity" and "civility and barbarity." Ultimately, as contemporary productions featuring imaginative and diverse casting show, "we all have the right to claim the Bard."

religion of the novel. That constituted George Eliot's holy trinity. The novel, after all, was the greatest engine of inwardness in the nineteenth century, the form that represented but also produced a godlessly "sacred" interiority. "We all have a better guide in ourselves," Jane Austen's Fanny Price says, "if we would attend to it, than any other person can be." Or than any God can be? George Eliot has Adam Bede voice what is almost a commonplace of the nineteenth-century novel when he says that "real religion" is not doctrines (what he calls "notions") but feelings: "It isn't notions sets people doing the right thing—it's feelings." Throughout the nineteenth century, we find the novelist waging war with hypocrisies and doctrines, religious and social, and often with the civil law that ritualistically enacts them, on behalf of the particularity and saving inwardness of the stubbornly individual fictional character. You could say that the nineteenth-century novel is so full of complicated "characters" precisely because they are so furiously resisting a society that simplifies them. Women, of course, were most obviously menaced by society's simplifications. "We don't ask what a woman does—we ask whom she belongs to," Philip Wakem's father announces in "The Mill on the Floss." For the novelist, the natural habitat of these resistant women was marriage. And, as the century progressed, the thing they were resisting became marriage itself.

As a storyteller, Eliot plots for marriage; it drives all her major novels. But, inevitably, happy, ideal marriages are barely represented in her pages. Adam Bede marries Dinah Morris in a brief, formulaic coda, entitled "Marriage Bells." In "The Mill on the Floss," Maggie Tulliver (a kind of authorial self-portrait), torn between a marriage of minds with the physically deformed Philip Wakem and a marriage of bodies with the dashing Stephen Guest, is granted neither, and dies chastely in the arms of her brother, Tom. In "Middlemarch," Dorothea Brooke first marries the wrong man (Casaubon), then strenuously fights her way into a happy marriage with the right one, the handsome young radical thinker Will Ladislaw. But her journey takes the length of the entire novel, and is summarized only in a quick, again largely formulaic, epilogue. Likewise, Daniel's morally ideal marriage to Mirah Lapidoth is the barely glimpsed solution at the very end of "Daniel Deronda," not part of the book's lived texture. In all these cases, the heroic marriages are heroic finales, existing outside the structure of the community that produced them or outside the structure of the novel that plotted them, and sometimes both. They can be given no more flesh and blood than Jane Austen awards Elizabeth Bennet's fairy-tale bliss with Darcy on the last page of "Pride and Prejudice."

Of course, novelists aren't interested in happy marriages but in unhappy ones—happiness writes white, and so on. Readers of Eliot vividly remember the unhappy marriages: Casaubon and Dorothea, Rosamond and Lydgate, Gwendolen and Grandcourt. Still, it's a tantalizing idea that Eliot idealized happy marriage so powerfully that she could hardly bear to explore its actualities on the page; as Austen makes marriage an almost unrepresentable romantic utopia, Eliot makes marriage an almost unrepresentable moral utopia. Nowhere is the gap between unhappy actuality and holy fantasy, between flesh and spirit, more acute than in her last great novel, "Daniel Deronda" (1876), that strange, fantastical, sometimes boring, and utterly compelling book. "Daniel Deronda" turns on two marriages, one vividly recorded and one postponed until the last pages of the book. The "real" marriage is the vicious failure, the differently yoked loneliness of Gwendolen and Grandcourt's union; she marries cynically and in desperation, for money, and has the misfortune to marry an exquisitely talented bully. Meanwhile, Daniel Deronda, an Englishman of uncertain parentage who magically turns out to be a Sephardic Jew, spends the length of the novel on a quest both for his identity and for his ideal mate, Mirah, a Jewish refugee of great beauty, physically and spiritually. Indeed, we can see Deronda as a kind of successful Casaubon, a worldly seeker who finds his Key to all Mythologies at the religious source: in Judaism. The "real" marriage in the novel is full of brutal materialities, formidably brought to life; the "unreal" marriage floats away into the ether, compacted into a brief epilogue of slightly more than three pages. Daniel is dreamily seen as Mirah's "rescuing angel"; Mirah can think of life with Daniel only in Eliot's highest terms, as that "which she could call by no other name than good." The marriage is almost immaterial. It can't quite be imagined in an actual England: the couple are about to set out for "the East." The Good calls them; the magnetic center is elsewhere.

Eliot would have known better than to poke the long, exploratory fingers of the novel into the thing she had with Lewes. Perhaps the great fortune of her marriage, illegal but sacred, seemed so miraculous and undeserved that she felt as if she were holding her breath for twenty-four years? We can say with decent confidence that George Eliot's marriage to George Henry Lewes realized, insofar as any worldly union can, the Good, here and now and not elsewhere: together they forged a brazier of love, and warmed themselves at its flame. Devotion to writing may indeed shine most vividly in Eliot's correspondence and journals, but it did not displace marital devotion. Perhaps it even augmented it. Carlisle is struck by the "quality of devotion" that runs through the marriage, and writes movingly about its entailments: "It is attention given, work done, tasks shared, disappointments borne, anger endured, quarrels forgiven, loss grieved."

In this spirit, Eliot wrote a remarkably beautiful and tender epigraph for the last chapter—the marriage coda—of "Daniel Deronda": "In the chequered area of human experience the seasons are all mingled as in the golden age: fruit and blossom hang together; in the same moment the sickle is reaping and the seed is sprinkled; one tends the green cluster and another treads the wine-press. Nay, in each of our lives harvest and spring-time are continually one, until Death himself gathers us and sows us anew in his invisible fields." She published these words in 1876. What did she already apprehend? Two years later, Death would gather her dear husband, a man about whom one of her admirers wrote, "The secret of his lovableness was that he was happy in being kind." ♦

THE COUP

In Ariel Dorfman's new novel, a billionaire has a scheme to save the planet.

BY JONATHAN DEE

RAYMOND DEPARDON / MAGNUM

How Salvador Allende died becomes an urgent question in "The Suicide Museum."

Salvador Allende's election, in 1970, to a six-year term as President of Chile—though he got to serve only about half of it—was one of those rare moments which give the world reason to believe there might be an alternative to the rapacious, greed-based way we have always run things. He had campaigned on a series of profoundly power-threatening reforms he called the "Chilean road to socialism," and his peaceful assumption of the Presidency—after three failed runs—seemed like something of a miracle. Over furious, often U.S.-backed opposition, he unleashed a torrent of changes, some of them socialist boilerplate (nationalizing the copper industry, redistributing farmland, supplying milk to schoolchildren) and others more visionary, such as the remarkable Project Cybersyn, aiming to link the then nascent technology of computers to factories and even to citizens' homes as a way of managing the economy and exploring direct democracy. For a thousand days or so, the nation, and the watching world, seemed transformed. Comparisons to the American Camelot that John F. Kennedy conjured would be fair up to a point. Both figures bear out the sad truth that nothing lends itself to myth-making, political or otherwise, like the vacuum left by an untimely death.

Allende's government was violently overthrown on September 11, 1973, by forces led by General Augusto Pinochet, who held power for the next seventeen years. Allende died in the coup; his closest political associates were executed, "disappeared," jailed, or exiled. Those who survived found themselves recast from people actively building a more just tomorrow into something like curators of historical memory. Most widely known among these, for the past five decades, has been the writer Ariel Dorfman—who, born in Argentina and raised in New York, became a Chilean citizen at the age of twenty-five and served in Allende's government as a "cultural adviser." Now eighty-one, Dorfman has a résumé that is quite fantastic, as broad as it is long; to cite the fact that he once wrote the book for a musical that won the Korean equivalent of a Tony Award (indeed, five of them) risks making him sound like a dilettante. He is best known in this country as the author of "Death and the Maiden," a powerful allegorical play—later adapted into a movie—about a woman confronting her torturer in a period of supposed societal reconciliation. And the book (written with Armand Mattelart) that first made his reputation in the West, "How to Read Donald Duck"—a slim, brutal, Marxist undressing of the American pop-cultural export machine—was a generation ahead of its time. When I was a college student, it altered my view of the world. (And, possibly, my father's, too: the news that he had worked his whole life to send his son to college to study Disney comics launched him into a kind of culturally conservative apoplexy from which he never really recovered.)

Dorfman's new book, his thirty-eighth, feels like a valediction to a career that, until now, has been varied in its instruments but consistent in its vision. "The Suicide Museum" (Other Press) can legitimately be described as autofiction; Dorfman himself is the narrator and central character, and a vast array of other people appear under their real names, including his wife and children and parents and a host of Chilean political figures, along with Jackson Browne and Christopher Reeve and Gabriel García Márquez. The book is set largely in the nineteen-nineties, and its focus is on the day in 1973 when La Moneda, Allende's Presidential palace, was stormed. (Dorfman

himself—by providential circumstances that also provoked a lifelong guilt—should have been present then but was not.) It is, however, also a novel that looks toward the future, and wrestles anew with Allende's legacy and its relevance in a world whose sense of crisis, fifty years later, has been reframed.

In his first years of post-coup exile, Dorfman writes, he frequently found himself travelling the West asking the rich and influential for money, to support the causes of the scattered and often endangered Allende diaspora. An anecdote related early in the novel, which I hope is true, describes a trip to Sweden in 1975 to ask Prime Minister Olof Palme for a large boat, to be filled with Chile's exiled artists, who would then drop anchor outside Valparaíso and "raucously demand to be allowed back into the country," an idea Palme rejects as the most irresponsible thing he has ever heard. "The Suicide Museum" opens on a day in 1983 when Dorfman is in Washington, D.C., to raise money for another such project. He has brunch with a billionaire Dutch magnate named Joseph Hortha (though he is better known by an alias), who, unlikely as it may seem, shares Dorfman's hero worship of Salvador Allende; in fact, he credits Allende with saving his life, via the inspiration of his example, not once but twice. Dorfman considers the meeting a success—he gets the check—and doesn't think much more of it until, seven years later, Hortha summons him to a second meeting and turns the tables by proposing to Dorfman a mission of his own. It is an outrageous ask—one requiring Dorfman to relocate, with his family, back to Chile (a move made feasible by the recent demise of the Pinochet regime). But the fee Hortha offers is commensurately huge, and so Dorfman makes an emotionally complicated return to the place he considers his spiritual and intellectual homeland, at the behest of this cheerfully shady mogul who makes a secret even of his name.

The billionaire, as a character, is having a moment in contemporary fiction. The ascendant trope seems to be that there is nothing of which a billionaire is not capable, which makes such figures sinister but also exquisitely useful in plot terms. Their combination of endless resources and psychological deformity means that you can use them to make anything happen. Even in the most naturalistic settings, they wander freely beyond the borders of realism. Hortha announces at one point, like some folktale wizard, that he will permit Dorfman's wife, Angélica, to ask him only three questions. More than once, reading "The Suicide Museum," I thought of Eleanor Catton's recent "Birnam Wood," another novel in which a character's billionaire status radically enlarges the field of plausible action. In both books, the underlying assumption is that billionaires are billionaires in the first place because they possess superhuman capacities that the rest of us do not. I eagerly await the fictional billionaire who has no interest in art or philosophy, who is cunning and dull and single-minded, who becomes a billionaire not because he has some quality the rest of us don't but because he lacks something the rest of us have, like empathy or self-regulation or an ability to feel satisfied—which seems to me to describe most of them.

In any case, the mission that Hortha sets for Dorfman is to determine, once and for all, how exactly Salvador Allende died. Although it's known that he died of a gunshot wound, there is considerable, often heated dispute over whether he died in hopeless yet glorious battle with Pinochet's henchmen or, rather than give them the satisfaction of his capture, took his own life. This is a question that matters enormously to revolutionary history, though the reasons that it matters may seem opaque or outdated now. It connects to a kind of machismo that seems a product partly of the place and partly of the time. Suffice it to say that those who most loved Allende dismiss any suggestion that the great man's end was stained by the dishonor—the cowardice, even—supposedly represented by suicide.

But there are two levels to this mystery: one is why generations of Allende followers care about it so much; the other, more immediate one is why Hortha needs it solved. He withholds his reasons from Dorfman, and thus from the reader, for hundreds of pages. This is a prime example of the authorial license to justify any effect you like, as long as it involves a billionaire. ("Over the many days I spent with Joseph Hortha," Dorfman writes, "I never saw him get to the point quickly.") And yet Hortha's eventual divulgence of his grand, ambitious, utterly lunatic plan makes for the most exhilarating section of the novel.

It begins with a personal epiphany. Hortha made his billions in the manufacture of plastic—ordinary stuff, shopping bags and the like. Then one day, he tells Dorfman, he caught a yellowfin tuna in the Pacific, took it to a chef to have it cleaned and served for his dinner, and discovered that it was tainted by its ingestion of the very plastic he helped produce. In that moment, Hortha was struck with a revelation: he has made his fortune by doing harm to the planet, and he must mend his ways. It's ridiculous and yet somehow convincing, considering the epic egocentricity of Hortha, a man whose "virile aura of power," Dorfman writes, "emanated from an endless faith that he could do no wrong."

Hortha decides that it is incumbent on him to use his resources to warn the world of impending disaster, to do whatever he can to save humanity from itself (or, one could argue, from people like him). His plan? To construct a vast exhibition hall exploring the subject of suicide in all its facets. A literal gallery of people with only one thing in common, the apparent decision to end their lives: Hitler and Primo Levi, Japanese kamikaze pilots and Walter Benjamin, Irish hunger strikers and Marilyn Monroe. A subject traditionally surrounded by misunderstanding and shame is one we must face head on, Hortha insists. Only by doing so can we understand, and then begin to reverse, the fact that, as a species, we are slowly committing suicide every day.

For an idea that is so outlandish on its face, it has an unexpected weight. "Once you start a mystery," Hortha tells a dumbstruck Dorfman, "you want to know who the murderer is, even if, like Oedipus, you discover that you're the culprit. By the time my visitors realize that they are complicit in the crime it will be too late for them to disregard the Museum's ultimate message. I will have caught them in the plot I'm weaving. Surely you, as an author, understand this strategy."

And then Hortha brings it all home by explaining that this mad project can-

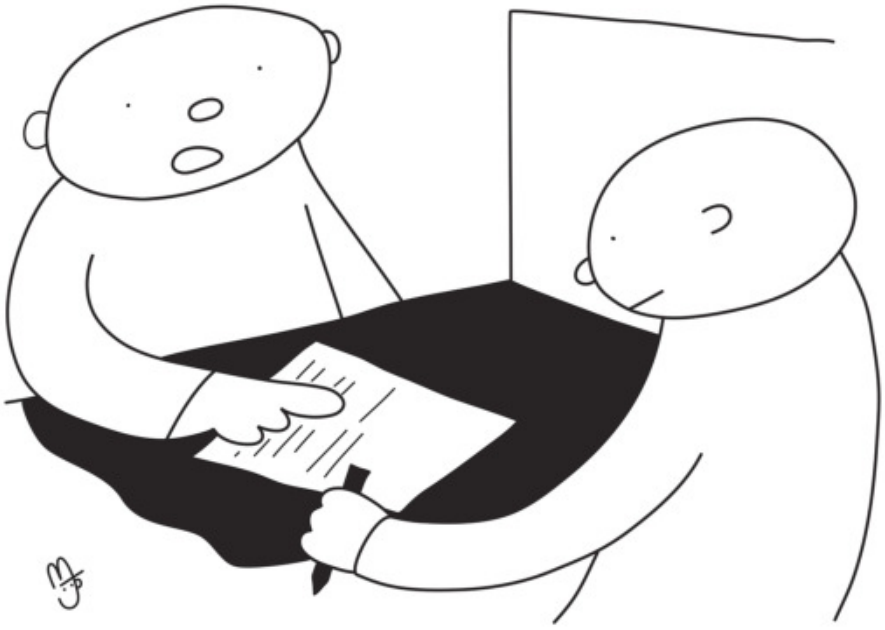
not take its first steps toward realization without some final resolution of the question: Did Salvador Allende commit suicide, or was he murdered? How should he be featured in the museum? The fact that this connection, so viscerally apparent to Hortha, makes very little logical sense to the reader is ingeniously outflanked by the fact that it makes no sense to Dorfman the character, either. "It all seemed extremely convoluted," he observes dryly. Angélica, more pointedly, considers Hortha "undoubtedly insane."

But, even as Dorfman rolls his eyes at Hortha's belated plan to save the planet, he does not neglect to accuse himself on that same score. A running element in the novel is Bill McKibben's seminal essay "The End of Nature," which first appeared in this magazine in 1989. (Characteristically, Hortha prints copies of the essay and hands them out, as if the piece were some great secret he had discovered.) Dorfman recalls that his own initial response to it was a kind of reflexive Marxist anger:

> While McKibben indicted humanity as complicit in this ecological crime, and demanded a radical redefinition of our purpose as a species, I retained a boundless confidence in the indomitable ability of men and women to resolve any problem we might encounter. . . . A bright future awaited mankind. Progress was the core of our identity as a species, our singular destiny. The solution to the current crisis was more control of the planet, not less.

Like many on the left, he reacted with instinctive suspicion to calls to curb industrial progress; the revolutionary in him saw such calls as a hypocritical attempt by the world's élite to close the door behind them and hold back poorer countries from improving their station. Thirty years later, the increasing synonymity between economic "progress" and extinction has become hard to ignore. What good, ultimately, is workers' control of the factories, say, if the factories are killing us all anyway? The radical rethinking required to keep us from destroying ourselves involves a kind of regress; the Chilean road to socialism, by contrast, moved only forward.

So if the Suicide Museum depends, in Hortha's own mind at least, on establishing some connection between the legacy of Salvador Allende and mankind's solution to the climate crisis, so does "The Suicide Museum." In a novel filled with real-life figures and events, Hortha gradually begins to read as a tragicomic avatar of Dorfman's own late-in-life struggle to reconcile ideas that don't fit together comfortably but that he cannot abandon: a ghost let loose in a memoir. "There had always been something evanescent about Hortha," Dorfman concedes, "something unbelievable about this billionaire with a conscience and a haunted past, so that when I was not in his presence I could almost imagine that I had invented him, this distant double of mine, like a character in a novel."



"Sign here, initial here, hesitate and ask me for today's date here."

• •

Partly out of sympathy, partly for the money, Dorfman undertakes his research. But the legend of Allende proves so potent and so contentious that much of what he learns even from people who claim to know the truth firsthand—who claim to have been at La Moneda, by Allende's side, on the fateful day—is flatly contradictory. The encomiums to Allende in the novel can become almost comical at times: he was, we're told, an expert marksman, a connoisseur of art and liqueur, a tireless doctor who gave patients medicine for free, a hero who died firing an AK-47 given to him by Fidel Castro. At Allende's grave, citizens leave not just votives and flowers but handwritten notes containing what could only be called prayers: to win the lottery, to pass a math exam, to find love. Facts don't really stand much of a chance in this atmosphere. In the end, Dorfman must make his own choice about what to tell Hortha, and why.

For the reader, it should deepen rather than spoil the novel's central mystery to know that, from the perspective of science, the question of how Allende died is long settled. His body has been autopsied twice, the second time in 2011, for the express purpose of determining the cause of death. But what is science, in our time? Just another story, with impugnable tellers. And how useful are facts alone, anyway, in terms of motivating us to do what we need to do, to reverse the course of our suicide? The answer would have to be: not terribly useful thus far. Great individuals remain more inspiring than great ideas; stories are more motivating than numbers. In what feels like Dorfman's parting admonition to us to act before it's too late (his acknowledgments contain the sentence "I will soon be dead," which is not an acknowledgment I can recall reading before), he insists that the myth of Allende retains its utility, even in a world the man himself wouldn't recognize. ♦

ON TELEVISION

HIGHER CALLING

Scammers with ambition in "Telemarketers" and "BS High."

BY INKOO KANG

The makers of "Telemarketers" don't bother with the trappings of authority.

Documentarians have made an art form of projecting expertise, and an air of professionalism is often essential to winning the trust of a source—or a viewer. But Patrick J. Pespas and Sam Lipman-Stern, the protagonists of the three-part docuseries "Telemarketers," on HBO, don't bother with the trappings of authority. Lipman-Stern is an untrained filmmaker who models himself after Michael Moore; Pespas, Lipman-Stern's call-center co-worker turned co-investigator, conducts interviews wearing sunglasses and pauses between questions to fidget with his phone. The pair first met in 2003, when Lipman-Stern, a fourteen-year-old high-school dropout, took a job at the only place that would hire him: a fund-raising organization in New Jersey called the Civic Development Group, which would soon be fined for what one news anchor called "the biggest telemarketing scam in American history." The thirtysomething Pespas had a criminal record and a drug problem; he was also the best in the game.

For the next several years, Lipman-Stern documented the anarchic vibe at C.D.G., including Pespas's habit of snorting heroin in the office bathroom and drifting off in a "dope nod" in front of his computer. ("He would just be passing out at his desk but still getting sales half asleep," a former colleague marvels.) Alcohol flowed freely among the many ex-convicts on the clock. Someone got a tattoo on the sales floor. A miniature turtle was brought in, as was a litter of pit-bull puppies. You can practically smell the funk of B.O. and spilled beer through the screen. Multiple interviewees assert that C.D.G. tended to hire criminals specifically for their presumed lack of scruples. As Lipman-Stern dug into the shady practices at his workplace, he and Pespas resolved to blow the whistle; the slapstick home videos become a kind of evidence. Later, when they team up with a journalist who's spent years reporting on charity grifts, she describes herself as "giddy" at the footage. "I had documents. I had the black-and-white numbers," she says. "But you guys had all the *stories*."

Executive-produced by the Safdie brothers, "Telemarketers" brings their signature scuzz-core aesthetic to an unlikely industry exposé. C.D.G. raked in millions per year—and, eventually, hundreds of millions per year—by soliciting donations for police-benevolent societies, using accounts of fallen or injured officers to goose contributions. The company paid local and state police unions for the right to use their names, then pocketed nearly all the money. In the early two-thousands, the trick was for the telemarketers to sound as if they were cops without actually saying they were cops. Then a policy change allowed the callers to misrepresent themselves as law enforcement. The former head of a competing firm recalls receiving more than eighty thousand dollars from one elderly man in four months. The schemes were uncovered over and over again, in newspaper articles and TV news segments. When C.D.G. finally shut down, in 2009, its owners settled with the Federal Trade Commission for almost nineteen million dollars. Within a couple of months, a new outfit had opened up with the same call scripts.

When Pespas and Lipman-Stern began their project, nearly twenty years ago, they aspired to take down "the entire industry." Life intervened. "Telemarketers" is partly a heartwarming tale of redemption, of how two ne'er-do-wells brimming with potential

ILLUSTRATION BY RYAN JOHNSON

found a sense of purpose, and partly a study of the vagaries of long-term documentary filmmaking. Their motivation falters more than once, as does Pespas's commitment to sobriety. It's become more common to hear of documentarians following their subjects for a decade or more, but there's something especially moving about the span of Lipman-Stern's footage, which allows us to see the friends' physical changes—and the extraordinary dedication it takes for two amateurish Davids to teach themselves how to confront a Goliath. (Pespas's shrewdness as a salesman doesn't always translate to investigative journalism. After he botches an encounter with a source, Lipman-Stern confesses in voice-over, "It never occurred to me that Pat might suck at this.") They reach several dead ends, only to be rerouted by, say, a tip from Lipman-Stern's father, about how to find court documents, or from his mother, who advises him to team up with his cousin and eventual co-director, Adam Bhala Lough. "He makes *real* movies!" she tells him.

In traditional media, Pespas's history of addiction would be a credibility killer. Here it's a sign of his authenticity—as are, I suppose, the unflattering shots of a shirtless Lipman-Stern in his bedroom, his hairy back and shoulders a kind of substitute for the gaps in his own biography. (We never learn why he dropped out of high school at such a young age.) Occasionally, "Telemarketers" sells the scum a bit too hard, as when it shows one scam caller shooting heroin, or uses Pespas's implied overdose as a cliffhanger. The wobbly final episode only glancingly acknowledges the ways that telemarketing tactics have evolved since C.D.G.'s day, now that A.I. has rendered flesh-and-blood employees largely obsolete and call scripts capitalize on political strife by framing donations as protests against police reform. But, when it becomes clear that there's no real conclusion to this story, the lack of closure feels right. "Regulating telemarketers is like regulating Somalia pirates. It just can't be done," a police-union leader says. In a world this grimy, there's nowhere to turn for help. The best you can do is phone a friend.

If Pespas seems to care little about how he appears on camera, Roy Johnson, the founder and head football coach of Bishop Sycamore High, a "fake school" in Ohio that enrolled real students, might care too much. Arriving on set for an interview for the documentary "BS High," a sporty but natty Johnson announces that he's taken a course on body language and asks where he should place his hands to inspire trust. "Do I look like a con artist?" he asks the crew. No one answers. "You look good," one of the filmmakers, Travon Free, finally says, eliding the question.

A 2021 game, televised on ESPN, was Johnson's pinnacle and downfall. His team lost so spectacularly to their powerhouse rivals that a commentator asked, "When did ESPN start airing comedy?" But the situation on the field was grim. The Bishop Sycamore quarterback was wearing an uncertified helmet, which flew off his head on the field, twice. There was no team medic when he dislocated his shoulder, or when the substitute quarterback broke his ankle. Investigations into Johnson's all-male school revealed that the football-first institution had no buildings, no teachers, and no enforcement of age limits, which led to some enrollees in their early twenties tackling opponents as young as fifteen. (Lacking effective training, the older B.S. team still lost.) Johnson's charges, promised housing and catered meals, stayed in hotels whose bills were seldom paid and eventually resorted to shoplifting food. The students' association with the school marred their futures long after the scandal broke. Many discovered that Johnson's deceptions had saddled them with eviction notices on their credit reports and P.P.P. loans taken out in their names.

"BS High" offers a cogent and polished postmortem of the Bishop Sycamore saga, balancing the absurdities of Johnson's madcap recklessness with the emotional and financial tolls borne by his players, most of whom, like their coach, are Black. The co-directors, Free and Martin Desmond Roe, initially seem to provide the satisfaction of catching a liar in his lies, but that requires a shameable subject. For all their righteous observations about the roles that race, regulatory loopholes, and the exploitation of youth played in fostering a rot like Bishop Sycamore, the documentarians seem resigned to the fact that their project supplies Johnson with the spotlight he's craved—and a stage from which to crow about the enormity and the audacity of his scams. After bringing together his first class, Johnson hired videographers, dreaming that the footage would one day end up on Netflix. Now he's on HBO. ♦

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CARTOON CAPTION CONTEST

Each week, we provide a cartoon in need of a caption. You, the reader, submit a caption, we choose three finalists, and you vote for your favorite. Caption submissions for this week's cartoon, by Frank Cotham, must be received by Sunday, September 10th. The finalists in the August 28th contest appear below. We will announce the winner, and the finalists in this week's contest, in the September 25th issue. Anyone age thirteen or older can enter or vote. To do so, and to read the complete rules, visit contest.newyorker.com.

THIS WEEK'S CONTEST

" "

.....

THE FINALISTS

"Tell me about a time you were bent out of shape."
Carol Lasky, Boston, Mass.

"It's not 'my friend'—it's a desk lamp."
Chris Schlekat, Durham, N.C.

"Fifteen years in the bathroom-sign industry is impressive, but crosswalk work is a whole different ballgame."
Clayton Myers, Kansas City, Mo.

THE WINNING CAPTION

"Things get more interesting at noon."
Brandon Lawniczak, Mill Valley, Calif.

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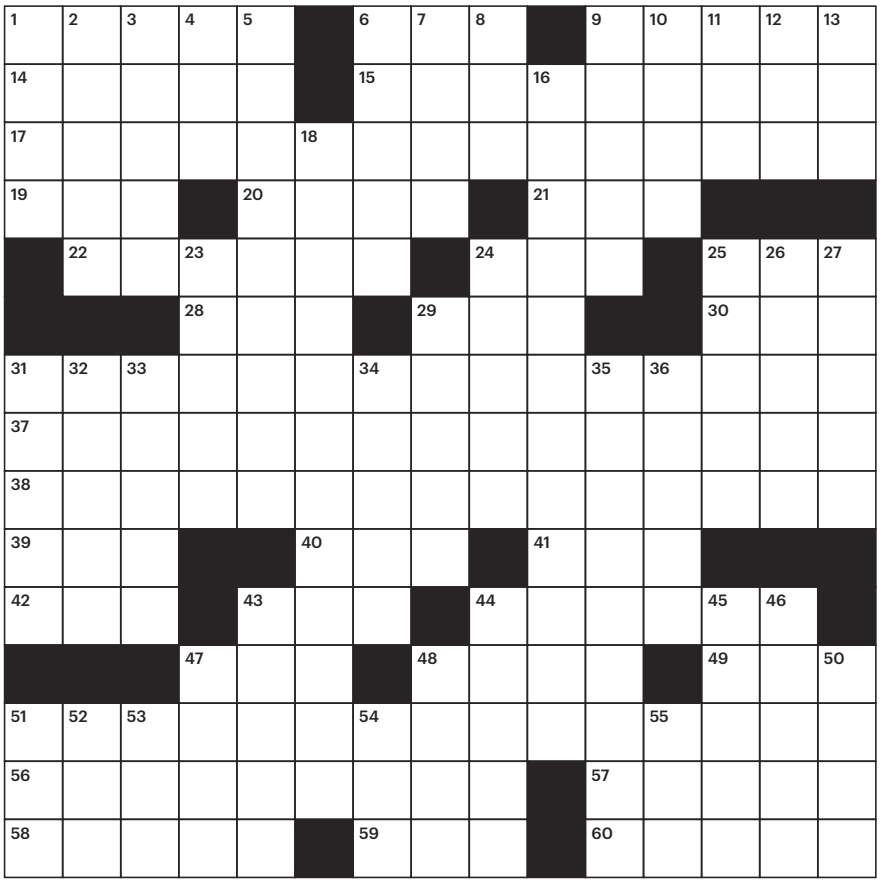
PUZZLES & GAMES DEPT.

THE CROSSWORD

A lightly challenging puzzle.

BY WILL NEDIGER



ACROSS

1 Religious meal with four cups of wine
6 They might be blocked online
9 Country singer Wynette
14 Capital near the Nile Delta
15 Blocked online, in a way
17 Galaxy brains?
19 Vegas action
20 Alternatives to CT scans
21 Minor issue
22 Like some beds in college dorms
24 Infamous insecticide, for short
25 "Catch-22" character who repeatedly crashes his plane
28 Home land?
29 Bacardi product
30 Word after a married name
31 Focussed on outcomes
37 "Oh, we're going to get along splendidly"
38 Corner-of-the-eye sighting
39 ___ Newtons
40 "Don't think so"
41 Low letter grade
42 "Understand?"
43 Skill practiced on dummies, for short
44 Old gold coins
47 Starchy Polynesian staple
48 Biological molecule whose "M" stands for "messenger"
49 Have unpaid bills
51 "Surprise, surprise"
56 Wailing like a banshee
57 Jumps on ice
58 "Sunrise" singer Norah
59 Lil ___ X
60 Sucker, in Sussex

DOWN

1 Striker's bane
2 Prop in a studio
3 "Me, too!"
4 "Admittedly I ___ by undertaking / This in its present form" (opening of "The Changing Light at Sandover")
5 Available space in a boarding house
6 Sap-sucking bug
7 Tear-off-calendar pages
8 Part of O.S., briefly
9 Unstated, but understood
10 Landed
11 Toronto F.C.'s org.
12 Convened or converged
13 QB stat
16 Showy one-handed basket
18 John Hughes film named for a Psychedelic Furs song
23 Accidental success
24 Hair protector
25 Not bottled or canned
26 Oboist's supply
27 Change back to brunette, maybe
29 Like a draft in need of editing
31 Jokes improvisationally
32 Bella Ramsey's "The Last of Us" role
33 Protracted attack
34 Means of detecting underwater objects
35 Nineteenth-century engineering project mockingly nicknamed Clinton's Big Ditch
36 Home of a lion slain by Hercules
43 Does some programming
44 What a long, boring meeting does
45 It gets wet when it dries
46 Guzzle
47 Ballet move whose name means "bent"
48 Bird that can imitate speech
50 Platform for many side businesses
51 N.Y.T. competitor
52 "Well, well, well!"
53 "Ode on a Grecian ___"
54 Cookie container
55 Palindromic kitchenware brand

Solution to the previous puzzle:

■	■	■	M	A	R	T	I	N	■	G	O	T	I	T
■	■	M	E	P	O	R	T	O	B	O	N	I	T	O
■	R	A	S	P	B	E	R	R	Y	B	E	R	E	T
A	U	K	S	■	■	N	Y	S	E	■	■	E	M	S
U	N	E	■	A	I	D	■	E	W	E	S	■	■	■
S	H	O	■	R	I	S	K	■	E	X	P	A	T	S
T	O	U	R	E	R	■	I	C	E	C	A	N	O	E
E	T	T	E	■	C	A	N	I	K	I	C	K	I	T
N	A	S	A	L	■	N	G	O	■	T	E	A	L	S
■	N	E	P	A	L	I	S	■	T	E	T	■	■	■
C	D	S	■	B	E	T	C	H	A	■	R	A	M	I
A	C	S	■	S	H	A	R	I	N	G	A	B	E	D
R	O	I	L	■	I	M	O	N	■	E	V	I	T	E
V	L	O	G	■	G	U	S	T	■	M	E	D	E	A
E	D	N	A	■	H	I	S	S	■	S	L	E	D	S

Find more puzzles and this week's solution at **newyorker.com/crossword**

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